UNIVERSITY OF Southampton

University of Southampton Research Repository
ePrints Soton

http://eprints.soton.ac.uk

UNIVERSITY OF SOUTHAMPTON

FACULTY OF LAW, ARTS & SOCIAL SCIENCES

School of Social Sciences

Leaving Lone Parenthood: Analysis of the repartnering patterns of lone mothers in the U.K.

by

Alexandra Jane Skew

Thesis for the degree of Doctor of Philosophy

January 2009

UNIVERSITY OF SOUTHAMPTON
<u>ABSTRACT</u>
FACULTY OF LAW ARTS AND SOCIAL SCIENCES
SCHOOL OF SOCIAL SCIENCES
<u>Doctor of Philosophy</u>

Leaving Lone Parenthood: Analysis of the repartnering patterns of lone mothers in the
U.K.
by
Alexandra Jane Skew

Despite a wealth of research in the U.K. on the stock of lone parents, in recent years there has been a lack of research on the dynamics of lone parenthood, particularly leaving lone parenthood. In an attempt to fill this gap, this thesis provides a detailed study of repartnering patterns of lone mothers in the U.K. This study uses the first 14 waves of the British Household Panel Survey (BHPS), a nationally representative survey conducted annually which interviews every adult member of a sample of around 5,000 households amounting to around 10,000 individual interviews. This data is particularly advantageous for this study due to its prospective longitudinal nature, allowing lone mothers to be captured at the point of entry into lone motherhood and their repartnering patterns to be analysed over subsequent waves. In addition the data enabled the construction of marital and cohabitation histories for lone mothers in order to control for any effect of prior union history on the probability of repartnering.

Employing discrete time event history analysis techniques, the first part of this research examines repartnering among two distinct groups of lone mothers; those entering through the breakdown of a cohabiting or marital union and those entering through the birth of a child whilst single and never-married. Of particular interest is the effect of these different routes of entry into lone motherhood on the timing and determinants of repartnering and the types of new unions formed. The second part of the study seeks to identify if repartnering is associated with improved well-being for lone mothers. Using a series of pooled logistic regression models this thesis explores the association of repartnering with transitions in three domains: economic, demographic and health.

Amongst those entering lone motherhood through the breakdown of a previous partnership the most important determinant of repartnering is found to be age at entry into lone motherhood. However, the economic situation of a lone mother, in particular whether or not she was receiving Income Support, has a much stronger influence on repartnering among single never married lone mothers than age. The duration of lone motherhood is found to be similar for both types of lone mother, -estimated at around five years, however controlling for a number of demographic and socio-economic factors suggests the probability of repartnering is lower for those entering through the breakdown of a cohabitation compared with those entering through the dissolution of a marriage. There appears to be a preference for cohabitation over marriage with nearly three quarters of those who repartnered moving into a cohabiting union. However, the higher chance of moving into a marriage for those who were previously married appears to result from a high proportion reconciling with a former partner.

Examining the relationship between repartnering and other transitions occurring in three domains reveals that repartnering is likely to occur against a backdrop of other changes. Repartnering is strongly associated with an improvement in financial situation, residential mobility and an increase in the number of resident dependent children. Although no direct link is found between repartnering and improved mental health outcomes, the strong association between improved financial well-being and an improvement in mental health indicates repartnering may be indirectly related to better mental health. However, the finding of a direct association between poorer mental health and repartnering warrants further investigation.

Contents

List of tables

List of figures

Declaration of authorship

_____

I, …………………………………………………………………………………..,

declare that the thesis entitled [enter title]

……………………………………………………………………………………………
…………………………………………………………………………………………..

and the work presented in the thesis are both my own, and have been generated by me as the result of my own original research. I confirm that:

- this work was done wholly or mainly while in candidature for a research degree at this University;

- where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

- where I have consulted the published work of others, this is always clearly attributed;

- where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

- I have acknowledged all main sources of help;

- where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

- none of this work has been published before submission.

Signed: …………………………………………………………………..

Date:………………………………………………………………….

Acknowledgments

I would like express my sincere thanks to my supervisors Professor Jane Falkingham and Dr Ann Berrington for their support and advice throughout this project. I could not have asked for better supervision. Many thanks go to Professor Peter Smith for all the times he has been called upon for statistical guidance, often at short notice and sometimes from the other side of the world. I am grateful for the useful comments provided by Dr James Brown. Thanks are also due to members of the division who attended my seminars and provided constructive feedback on my research.

The fact that I have managed to get through the last three years is in a large way determined by the friendship and support from those I began this journey with – Guy Abel, Bernard Baffour, Claire Bailey, David Clifford and Lisa Danquah. Other peers, particularly Aisha Taplin, Corrado Giulietti, Alinne Veiga and Teresa McGowan have also played an important part in helping me to achieve this goal, either by passing on office gossip to amuse me throughout the long days or by providing a forum within which I could discuss research ideas or problems.

Amos Channon came along at a time when I was struggling to find the motivation to complete this project. He helped me to get back on track and has been there everyday since to make sure I keep going. I cannot thank him enough for the countless ways in which he has helped me.

Whilst my family have found it hard to understand the work I have been doing, I want to thank them for their continued encouragement over this time.

Finally, I want to thank Kay Channon for kindly agreeing to proof read this thesis.

Glossary

BHPS   British Household Panel Survey

Dependent children   Any children under 16 years of age. This is a working definition specific to this analysis and is different to the DSS definition which also includes children aged 16-18 in full-time education.

DSS   Department of Social Security

FACS   The Families and Children Study

Family Credit   Means tested benefit for those working a minimum of 16 hours per week (from 1992 onwards). Replaced by WFTC in 1999

GHQ   General Health Questionnaire

Income Support   Means tested benefit for those working less than 16 hours per week

LAT   Living apart together relationship

Lone mother   Any woman living without a spouse and not cohabiting, but living with their dependent children

PRILIF   Programme of Research into Low Income Families

PRILIF cohort   A sample of lone mothers drawn from the Survey of Low Income Families in 1991 and followed up throughout the 1990s and until 2001

PSI   Policy Studies Institute

Repartner   Form a co-residential relationship (does not include 'Living apart together' relationship)

WFTC   Working Families' Tax Credit. Replaced Family Credit in 1999. Means tested. Claimants must work a minimum of 16 hours per week

Chapter 1

Introduction

Single parents, lone parents and one parent families are all terms used to describe the growing number of unmarried, separated, divorced or widowed mothers and fathers who are bringing up their dependent children without a partner or spouse. Lone parents, as they are often referred to in the more recent literature on this family type, now represent a quarter of all families with dependent children in Britain according to the 2006 Families and Children Study (Conolly and Kerr, 2008). In fact, as Conolly and Kerr (2008) highlight, the majority of lone parents are actually lone mothers, with lone fathers accounting for only five per cent.

The steady rise in the number of lone mothers comes as part of a wider change to family structures in the UK which began in the early 1970s, most notably as a result of a decline in first marriage rates, a rise in divorce rates, a growing trend for cohabitation over marriage and an increase in extra-marital childbearing. At the beginning of this period the number of lone parent families was estimated at around half a million (Haskey, 1998). Data collected by the 2001 Census indicate that there are now in excess of 1.79 million such families in Great Britain. Rowlingson (2001) highlights several factors which have been proposed as possible causes of this trend including structural economic shifts, such as changing levels of female and male employment rates which have impacted upon and altered levels of inequality between men and women; changes in the welfare state and legislation surrounding family life, such as the Divorce Reform Act; and changes in cultural values and individual attitudes towards childbearing and relationships.

As a result of this increase in lone parenthood, there has been a subsequent rise in research into this issue across a range of different academic disciplines. Demographers

have sought to estimate numbers and investigate characteristics, as recommended by the Finer Report (Finer, 1974), which considered the problems associated with lone parent families and called for better estimation of the number, sex, and characteristics of one-parent families (Leete, 1978). Unlike vital events such as births, deaths, marriages and divorces, there is no formal registration of the number of lone parent families making estimation of the numbers of this family type difficult. In particular this has meant it has been necessary to rely upon survey data in order to derive estimates outside of census years. This estimation procedure began with the work of Leete (1978) and has continued with the work of Haskey (1989; 1991; 1993; 1998; 2002) who has estimated the numbers of one-parent families at regular intervals and has worked particularly on deriving a 'best estimate' using several different data sources, including large-scale social surveys such as the General Household Survey and the Labour Force Survey, as well as Social Security Statistics, and using a variety of different methods. More recent estimates have been calculated by Smallwood and Wilson (2007). Research on the demographic and socio-economic characteristics of the stock of lone mothers has also been carried out using data collected by the General Household Survey (Haskey, 1986; Haskey, 1989; Haskey, 1991; Haskey, 1998; Kiernan, Land and Lewis, 1998).

Due to the growing number of lone parents and the finding that many such families suffer economic hardship and are often reliant upon social security benefits (Millar, 1989), the issue of lone parenthood has also become an interest from a social policy perspective. In fact in 1988 the Department of Social Security (DSS) commissioned the first sample survey of the stock of lone parents in the UK. The focus of this study was to explore the dynamics of lone parenthood and examine factors leading to a move off benefits with a central aim to inform policy for this family type (Bradshaw and Millar, 1991). Following this the Policy Studies Institute (PSI) carried out surveys on a sample of lone parents drawn from the Survey of Low Income Families conducted in 1991 as part of their Programme of Research into Low Income Families (PRILIF). The lone parents interviewed in 1991 have been followed up and re-interviewed annually from 1993-1996 and then again in 1998 and 2001. In 1999 the PSI conducted another survey of low-income families with children, which was designed to be the first in a series of surveys. Now known as The Families and Children Study (FACS), it is a 'true' panel interviewing the same respondents each year. From 2001 onwards higher income families have also been interviewed allowing subsequent surveys to be representative of all British families (Marsh and Perry, 2003). These surveys have become the basis for

much research on lone parents investigating factors such as their participation in the labour market (McKay and Marsh, 1994; Marsh, Ford and Finlayson, 1997; Finlayson and Marsh, 1998), how their characteristics and behaviour have changed over time (Ford, Marsh and McKay, 1995; Ford, Marsh and Finlayson, 1998; Finlayson et al., 2000; Marsh and Perry, 2003; Marsh and Vegeris, 2004) and factors which may prevent them from entering employment such as their health (Casebourne and Britton, 2004) and childcare responsibilities (Kasparova et al., 2003). Additionally a number of these surveys have been used to investigate the association between repartnering and well-being of lone mothers.

There has also been interest in lone parents from a more psychological standpoint which considers aspects such as the health of lone mothers (Hope, Power and Rodgers, 1999a) and the consequences for children of being raised outside of a two-parent family context (see e.g. O'Connor et al., 2001).

Despite this, much of this research considers only the 'stock' of lone mothers. Surprisingly little attention has been paid to the 'flows' into lone motherhood, and less still, back out again through repartnering. It has been found that lone mothers are more likely to be suffering financial hardship compared with couple families and it has been suggested by Smock (1990) that repartnering might be considered as a route out of this poverty. It is therefore important to find out what factors influence a move into a partnership and the likely timing of such an event, particularly since the numbers of lone mothers appear to be increasing over time. The implications of repartnering for a lone mother's financial well-being, as well as other aspects of well-being are also clearly important.

The aim of this thesis is, therefore, to provide a detailed study of transitions out of lone parenthood through repartnering for lone mothers in the UK. Using the British Household Panel Survey (BHPS) and utilising, in particular, event history analysis techniques, this study aims to provide further evidence of the factors associated with a move into a partnership. Since there are several different routes into lone parenthood, for example through the breakdown of a partnership or through having a birth whilst single and never-married, it is important to investigate how the repartnering patterns might differ for these distinct *types* of lone mothers. Finally, an analysis of the association between repartnering and economic, demographic, and health transitions

aims to determine if repartnering is associated with improved well-being. Overall, a number of research questions are addressed here and are set out below.

1.1 Research questions

1. What are the characteristics associated with the timing to repartnering[1] and hence the duration of lone motherhood?

      i. Are demographic and socio-economic characteristics important determinants of the time to repartnering?

      ii. Which type of lone mother is more likely to repartner sooner?

      iii. Does the effect of the covariates on the probability of repartnering change over the length of time spent as a lone mother?

2. What types of partnerships are formed? Are particular partnerships more common for different types of lone parent?

3. What is the relationship between repartnering and well-being of lone mothers?

      o   How is repartnering associated with transitions in three key domains: economic; demographic and health?

      o   Is repartnering associated with:
- An improvement in economic circumstances?
- Additional demographic changes, such as an increase in the number of resident dependent children or a household move?
- Improved health?

---

[1] Where repartnering refers to a new co-residential partner and does not take account of any Living apart together (LAT) relationships.

1.2 Outline of the report

This first chapter provides a brief introduction to the topic of this research. It provides a justification of the chosen research topic and in particular highlights the research questions that this study will answer.

Chapter 2 begins by presenting an overview of the literature pertaining to the dynamics of lone parenthood and provides a more in-depth rationale for the current study by considering the limitations of the existing small body of literature available on the repartnering of lone mothers. The chapter draws together findings from previous studies into the determinants of leaving lone motherhood. The final section of Chapter 2 presents a framework for the analysis of the repartnering of lone mothers.

Chapter 3 introduces the issue of repartnering and well-being of lone mothers and thus provides an answer to the question *why* it is important to examine repartnering among lone mothers. This chapter reviews existing research on the association between repartnering and well-being. Both the findings and the limitations of previous studies are discussed. Finally, hypotheses for the analyses conducted later in Chapter 10 are outlined.

Chapter 4 introduces the BHPS from which the sample of lone mothers under analysis is drawn. Firstly the data and sampling procedures are described. This is followed by a detailed account of how the samples for analysis were selected from the original dataset and how issues that arose in selecting these samples were answered. Variables selected for analysis are outlined. The next section investigates the quality of the data, including an examination of wave non-response and attrition from the samples. An inspection of the levels of item non-response is conducted and a description of the methods chosen to deal with this issue stated.

The main statistical methods to be used in the analysis are described in Chapter 5. Limitations of the methods are discussed and the procedure used for selecting the statistical models is outlined.

Chapter 6 presents the findings from the analyses of the single never-married lone mothers. Initially, a life-table analysis is conducted and bivariate associations of each

of the explanatory variables with repartnering are examined. This is followed by the results from a multivariate analysis which employed a discrete-time event history model to examine the effect of each factor on repartnering for this group of lone mothers whilst controlling for other factors.

Chapter 7 presents the results of the analyses of those becoming a lone mother through the breakdown of a previous partnership. The structure follows the same format as Chapter 6.

Chapter 8 considers the determinants of repartnering for all lone mothers, using a pooled sample of the different types of lone mothers analysed in Chapters 6 and 7. Discrete-time hazard models are employed and the findings are presented and discussed.

Chapter 9 investigates how the demographic and socio-economic factors may be related to different exits from lone parenthood (i.e. through marriage or through cohabitation), with a specific focus on the effect of the different routes of entry into lone motherhood on exits from lone motherhood into different types of partnerships. A descriptive analysis is conducted initially to examine how transitions to each type of partnership vary by type of lone mother. This is followed by the results from multivariate analyses conducted using multinomial logistic hazard models.

Chapter 10 is structured around analyses of transitions in three domains related to the well-being of lone mothers, namely demographic, economic and health. At the beginning of the chapter a descriptive analysis of the sub-sample of lone mothers found to repartner in earlier analyses is conducted. The next section carries out multivariate analyses to investigate the association of repartnering with transitions in the three domains. A pooled logistic regression analysis approach is utilised in these analyses. The chapter closes with a discussion of the results, the limitations with the analyses and the directions for further study.

Chapter 11 reviews the key findings of the study and provides the conclusions of the research project. The potential policy implications of the research are highlighted, the limitations of the study are discussed and future research areas are suggested.

Chapter 2

Review of the literature on routes out of lone motherhood

An abundance of literature exists pertaining to lone parents in the U.K. as well as those in other developed countries such as the U.S., Canada and Australia. The focus of this chapter is on literature relevant to repartnering of lone mothers in the U.K. Later, in Chapter 3, the existing literature concerning the relationship between repartnering and well-being of lone mothers will be reviewed. Included in the review in this chapter are studies relating to remarriage and repartnering of all individuals (not just lone parents), since these are able to provide important insights into the factors associated with leaving lone parenthood. Furthermore, whilst this review concentrates on research conducted in the U.K., research from other countries will be drawn upon where appropriate or necessary, as indicated in the text.

The chapter begins with an overview of research on the dynamics of lone parenthood and specifically the issue of leaving lone parenthood. This is followed by a discussion of the limitations of existing research on repartnering of lone mothers and provides a rationale for this current study. The final sections explore the findings from previous research in relation to the demographic and socio-economic determinants of leaving lone parenthood.

2.1 Research on the dynamics of lone parenthood

As highlighted in Chapter 1, despite the overall wealth of research into lone parent families there has been comparatively little recent research which specifically explores the dynamics of lone parenthood in the U.K. Studies of divorce carried out in the 1980s

and 1990s have investigated demographic and socio-economic differentials in marital disruption and provide clues as to the factors associated with becoming a lone mother through the separation of a partnership (Haskey, 1983; Murphy, 1985; Haskey, 1992; Kiernan and Mueller, 1998; Berrington and Diamond, 1999). Many of these findings have been subsequently corroborated by studies investigating the issue of becoming a lone parent explicitly. These have highlighted that in general it is demographic factors, particularly age at marriage, which are key in determining whether a woman becomes a lone mother through the breakdown of a partnership. In contrast the likelihood of becoming a lone mother through giving birth for those that are single and never-married is largely a function of socio-economic background factors (Böheim and Ermisch, 1998; Rowlingson and McKay, 1998; McKay, 2003).

Less attention still has been paid to considering how demographic and socio-economic variables influence the likelihood of lone parents subsequently *leaving* lone parenthood through the process of repartnering. As a result we know little about the factors which influence the duration of lone parenthood. Given the continued rise in number of lone parent families and the proportion of children experiencing a period of their lives in a lone parent family, then it becomes increasingly important to understand the likelihood of and time it takes to leave lone parenthood. This is especially true when one considers that this situation is often characterised by financial hardship. In light of the fact that two-parent households tend to be more economically secure - analysis of the 2006 FACS indicates 47 per cent of lone mother families are in the lowest income quintile compared with only seven per cent of couple families (Conolly and Kerr, 2008) - then the importance of repartnering as a method to lift lone mothers out of hardship becomes key. Moreover, given the rise in lone parenthood may, to a certain extent, be due to an increase in the length of time women remain lone parents as well as an increase in the number of women becoming lone parents then an understanding of the *duration* of lone parenthood is essential to fully understand the growth in lone parenthood (McKay, 2003).

2.2 Limitations with previous U.K. research on leaving lone motherhood

A number of U.K. studies have investigated the likelihood of leaving lone motherhood based on various demographic and socio-economic covariates (Ermisch, Jenkins and Wright, 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Ford et al., 1998; Payne and Range, 1998; Rowlingson and McKay, 1998; Finlayson et al., 2000; Marsh and Vegeris, 2004). In addition to these studies are those which have considered the determinants of remarriage or repartnering of all individuals (Lampard and Peggs, 1999; Ermisch, 2002; Pevalin and Ermisch, 2004) and provide some indication of factors which are likely to be important for repartnering of lone mothers. However, several points regarding the existing literature are worth noting.

Firstly, several of these studies focus exclusively on remarriage, despite the fact that the proportion of women of all marital status groups (i.e. including separated and divorced women) that are cohabiting has risen in the past thirty years (Haskey, 2001). In particular, research has demonstrated that cohabitation is now the dominant mode of first partnership with over 70 per cent of first partnerships being cohabitations (Ermisch and Francesconi, 2000a). Similarly, for those repartnering a clear preference for cohabitation over marriage has been noted (Böheim and Ermisch, 1998; Ermisch and Francesconi, 2000a). Furthermore, several repartnering studies conducted in Canada and the Netherlands have found that there are different factors associated with forming a cohabiting second union versus a marital second union (Wu and Balakrishnan, 1994; De Graaf and Kalmijn, 2003; Wu and Schimmele, 2005). Replicating the findings from the UK these studies also indicate that many people who repartner choose to cohabit without being married. In fact, Wu and Schimmele (2005) found non-marital cohabitation to be the predominant choice of second union in their study, particularly among individuals whose relationship career began with a non-marital cohabitation. It is therefore important that future studies investigating the repartnering patterns of lone mothers consider the different types of second unions formed and do not concentrate solely on remarriage.

Secondly, not all studies have fully accounted for the different ways a woman may enter lone parenthood initially. For example, Ermisch et al (1990) only consider previously married lone mothers in their study. As previously mentioned, the number of couples

cohabitating has risen dramatically in recent years. Childbearing in these unions has also become considerably more common today compared with twenty years previously (Ermisch, 2002). However, these types of unions have been found by many studies to be more fragile than marital unions, with less than a fifth surviving five years or more and less than a tenth surviving ten years or more (Ermisch and Francesconi, 2000a). Furthermore, despite childbearing within a cohabiting union lengthening the duration of the union, it reduces the likelihood of marriage which ultimately leads to a higher dissolution rate for such unions (Ermisch and Francesconi, 2000a). Ermisch (1997) estimates the breakdown of cohabiting unions within which children are born contribute two-fifths of the proportion of lone mothers that are never-married. Moreover, the proportion of never-married lone mothers has risen so that now almost half (46 per cent) of all lone mothers are never-married (Barnes et al., 2005). It is therefore important to include these types of lone mothers, as well as those who enter through the breakdown of a partnership, when analysing repartnering patterns of lone mothers.

Most studies have made an attempt to take into consideration the different routes into lone motherhood by either including an indicator variable to denote (previous) marital status (Ford et al., 1998; Finlayson et al., 2000; Marsh and Vegeris, 2004) or the presence of a partner in the month prior to entering lone motherhood (Payne and Range, 1998) or by carrying out separate models for separated and divorced lone mothers compared with never-married lone mothers (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Rowlingson and McKay, 1998). However, none of the studies which have carried out separate models for previously married versus never-married lone mothers have distinguished between those entering through the separation of a cohabiting relationship and those who entered through giving birth whilst single[2]. Since a proportion of single never-married lone mothers who enter through giving birth will be partnering for the first time, whereas those who have separated from a cohabiting union are repartnering, then the factors which come into play to affect the likelihood and timing of this event are likely to be different. Aside from that, one can imagine that the experience of lone motherhood is likely to be very different for those entering through giving birth whilst single compared with those entering through the breakdown of a partnership – no matter whether it was a cohabiting or marital union. For example, the support from the non-resident biological father in terms of his

---

[2] This appears to be either the result of data constraints preventing the identification of those who have dissolved a cohabiting union, or too few occurrences of this event in the dataset.

involvement with the child (children) and his share of custody is likely to be different between the two groups of lone mothers. Findings from the U.S. provide evidence to suggest this might be the case – around a third of unmarried couples who were not living together at the time of the birth had no relationship with each other one year later (which they presume to indicate that the father had no relationship with the child either), but this was the case for only 10 per cent of those who were cohabiting at the time of the birth (Carlson, Mclanahan and England, 2004). With that in mind, the time it takes to find a new partner and the factors involved are likely to be different for these two groups of women.

Analyses by Payne and Range (1998) (discussed in more detail below) certainly suggest that distinguishing between repartnering for those entering through the breakdown of a union and repartnering for those without a partner in the month before entering lone motherhood is more important than controlling for the type of partnership which broke down. Further support comes from the results of a study conducted in Canada which suggests that there is a significant difference in the likelihood of repartnering for lone mothers who gave birth whilst single compared with those separated from either a marital or cohabiting relationship (Le Bourdais, Desrosiers and Laplante, 1995). These results combined indicate the need for a more comprehensive approach that distinguishes between all routes of entry into lone motherhood.

A third issue relates to the choice of methodology employed to analyse the association of variables with repartnering. For example, Ford et al (1998) and Marsh and Vegeris (2004), in their analyses of data from the PRILIF cohort of lone mothers, used a logistic regression procedure to analyse the probability of a 1991 lone mother not being a lone mother in 1995; or having a partner in 1998 respectively, rather than the more traditionally used survival analysis technique. Although logistic regression analysis might be useful to highlight the various factors which may predict a move out of lone parenthood, it is less informative about how the characteristics of lone mothers actually affect the timing to repartnering and hence the overall duration of lone motherhood. Allison (1984) describes the key limitations with this method. The first concerns the dividing line (i.e. the year in which a partner is either observed or not observed, using these studies as an example). The decision regarding this particular time point is data driven rather than chosen through theoretical reasoning. Further to this, it results in a loss of information due to the fact that it ignores any variation on either side of the

11

dividing line. The second drawback with this method relates to the types of variables permitted by the analysis - only fixed time and not time-varying covariates can be used in the model. (See Section 5.1 for a more detailed discussion of the limitations of using a standard logistic regression analysis to analyse event history data.)

A final point to note concerns the inconsistency or lack of comparability of findings, particularly with respect to the effect of socio-economic variables on repartnering of lone mothers. Given the limitations with existing research highlighted above, this is perhaps not surprising. However, even when taking a broader view and considering the findings from general remarriage and repartnering studies and research conducted in other countries, the effect of socio-economic variables on repartnering does not become completely clear. There is a need for future research to include a wide spectrum of demographic and socio-economic variables in order to add to the current evidence base.

Certainly the large number of waves of BHPS data now available and the wide selection of variables included in each wave make this data source particularly appropriate to address the limitations of previous studies and answer the research questions set out in Chapter 1. Moreover, the lack of research on the duration of lone parenthood, particularly in the last five to ten years, indicates a need to re-examine this issue.

To summarise, there have been four key limitations with previous studies that have investigated leaving lone motherhood through repartnering:

- Consideration of remarriage as the only mode of repartnering
- Poor account of the different ways of entering lone motherhood
- Methodological constraints
- Inconsistent or lack of comparability of findings

Despite these limitations these studies do provide some important information on the likely effect of certain variables on repartnering of lone mothers. General remarriage and repartnering studies can also provide further insights and support for such findings. Furthermore, all of these studies serve to highlight some of the economic, social and cultural theories which have been used to try to explain and hypothesise about the determinants of repartnering or remarriage, which will be detailed below where relevant.

2.3 Findings from previous research relating to the duration of lone parenthood and the determinants of leaving lone motherhood

2.3.1 The duration of lone parenthood

The duration of lone parenthood has been investigated by a number of studies (e.g. Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Ford et al., 1998; Rowlingson and McKay, 1998; McKay, 2003). Ford et al (1998) do not distinguish between different types of lone mothers and estimate a median duration for all lone mothers of five years and three months. This is comparable to an estimate by McKay (2003) of close to six years. Other studies consider the duration of lone parenthood accounting for the different routes of entry (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Rowlingson and McKay, 1998; McKay, 2003)[3]. Results from earlier studies indicate that the duration of lone motherhood is shorter for 'single' or 'never-married' lone mothers compared with those separated or divorced from a marriage; life-table estimates from these studies suggest a median duration of around three years for single lone mothers and nearer five years for divorced lone mothers (Ermisch and Wright, 1991; Rowlingson and McKay, 1998). Rowlingson and McKay (1998) estimate a duration of over eight years for those separated from marriage, but no comparable estimate is provided by Ermisch and Wright (1991).

More recent estimates by Böheim and Ermisch (1998)[4] and McKay (2003) suggest that the duration of lone motherhood for single lone mothers has increased over time and is now similar to that of divorced lone mothers. In fact, Böheim and Ermisch (1998) find that the median duration of lone motherhood (using their preferred estimate) is slightly longer for never-married lone mothers compared with previously married lone mothers[5] – 4.6 years compared with 4.3 years respectively. An estimated median duration of near to seven years for those legally separated from marriage suggests little has changed for this group of lone mothers (McKay, 2003). Widowed lone mothers take by far the longest time to repartner, with latest estimates suggesting that it will take over ten years for half of the widowed lone mothers to find a new partner (McKay, 2003). No study has considered how the duration of lone parenthood may differ between those entering

---

[3] Although the definition of the different types of lone mother varies from one study to the next.
[4] Derived from transition rates rather than life-table methods.
[5] Previously married lone mothers include those separated, divorced and widowed from marriage.

through the breakdown of a marriage and those entering through the breakdown of a cohabiting relationship. However, repartnering studies suggest that the length of time to find a new partner is considerably longer after marital dissolution than after the break-up of a cohabitation –around six or seven years compared with around two (Ermisch, 2002; Pevalin and Ermisch, 2004). Research using Swedish and Norwegian data provides additional support for this finding (Blanc, 1987).

2.3.2 The relationship between demographic factors and repartnering

One of the most consistent findings with respect to the repartnering literature is the negative effect that **increasing age** exerts on the likelihood of repartnering. This finding holds irrespective of the specification of age, for example, current age (Rowlingson and McKay, 1998; Pevalin and Ermisch, 2004); age at separation/divorce or entry to lone motherhood (Ermisch et al., 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Payne and Range, 1998; Lampard and Peggs, 1999; Finlayson et al., 2000; Ermisch, 2002); age at beginning of study (Ford et al., 1998; Marsh and Vegeris, 2004)[6]; and age at first marriage (Lampard and Peggs, 1999). Indeed, both Ermisch et al (1990) and Ermisch and Wright (1991) found age at marital dissolution to be one of the strongest influences on the remarriage rate of previously married lone mothers in their study. Age at entry to lone motherhood was also found to be an important predictor of marriage for never-married lone mothers, with each additional year reducing their odds of marriage by eight per cent (Ermisch and Wright, 1991).

Several reasons have been suggested to explain this effect, many of which derive from economic theory and relate to a woman's position in the marriage market with increasing age and the diminished pool of potential marriage partners at older ages. As highlighted by Dean and Gurak (1978) in Bumpass, Sweet and Martin (1990; 751), "the availability of unmarried potential partners within a desirable age range decreases progressively as the person ages, at the same time that age decreases his or her 'market position'". Smock (1990; 472) also suggests that the finding of a negative effect of age at first marriage on remarriage for white women "may reflect that those who marry early have less experience in nonfamilial roles, such as work roles, and are thus more

---

[6] Ford et al (1998) only find a significant effect of age in their model which predicts ever leaving lone parenthood between 1991 and 1995. In their other model a lone mother's age in 1991 is not a significant predictor of not being a lone mother in 1995. This contrasting finding is likely to be a result of their modelling strategy which is not the most suitable for analysing exits from lone parenthood, as highlighted in Section 2.2.

inclined to remarry. Further these women may be more 'attached' to marriage." This point is supported by Le Bourdais et al (1995) who suggest that the more unstable economic situation of younger lone mothers may be a factor in their higher repartnering propensities.

Other suggestions emphasize the importance of youth in the physical attractiveness of women and the ability or willingness of older women to bear children making them less desirable to potential new partners (Ermisch and Wright, 1991). However, as Ermisch and Wright (1991) go on to discuss, it is possible that those who become lone mothers at later ages through having an extra-marital birth do so without any plans to marry.

Another key variable which has been found to be associated with the likelihood of repartnering, and which is also closely related to age, is the **number and ages of a lone mother's children**. Although, unlike age, the exact effect of these on repartnering has not been precisely determined. What has become apparent from studies that have investigated repartnering more generally, not just that of lone mothers, is that the mere presence of children does appear to reduce the likelihood of repartnering (Lampard and Peggs, 1999; Ermisch, 2002; Pevalin and Ermisch, 2004). Indeed, this finding is supported by research conducted in the U.S., Canada and the Netherlands (Bumpass et al., 1990; Wu and Balakrishnan, 1994; De Graaf and Kalmijn, 2003; Poortman, 2007). Therefore, even before other factors come into play, lone mothers are at a disadvantage in the repartnering market compared with their childless counterparts.

Again, as with age, economic hypotheses have been put forward to explain the effect of the presence of children on repartnering. These economic hypotheses largely stem from the work of Becker and his associates (Becker, Landes and Michael, 1977; 1142), who developed a framework of marital instability "incorporating uncertainty about outcomes of marital decisions into a framework of utility maximization and the marriage market" in order to attempt to explain the recent trends in marital dissolution at that time. This theory implies that the "speed and probability of remarriage depend directly on the expected gain from remarriage" and hence as children signify capital specific to the prior marriage they inhibit remarriage by increasing costs for a new partner. These costs can either be financial or those associated with the complexities of a stepfamily (Bumpass et al., 1990). As highlighted by De Graaf and Kalmijn (2003) and Ermisch and Wright (1991) children from a prior relationship can serve as a source of conflict or

friction in a new relationship. Children may also be "reluctant to accept a 'surrogate' parent" (Sweet, 1973) in (Bumpass et al., 1990; 752).

From a social theory perspective children are viewed as a deterrent to repartnering due to the fact that they limit the amount of time a women has to go out and meet a new partner (Wallerstein and Blakeslee, 1989; Ermisch et al., 1990). In fact De Graaf and Kalmijn (2003) find evidence to support this theory from their analysis of data collected in the Netherlands. Their findings suggest that resident children mainly affect the odds of finding a partner at work or in leisure contexts, but have little effect on the odds of finding a partner through one's own network. Hence showing that "preferences and attactiveness are not the main ways that children can reduce women's repartnering chances" (p.1489). Qualitative findings from Lampard and Peggs (1999) emphasize the fact that children often take priority over forming new relationships and can act as a barrier or eliminate the need for a new relationship. In addition, a person with children may be less likely to want additional children which in turn may affect their repartnering prospects (Ermisch and Wright, 1991; De Graaf and Kalmijn, 2003).

Despite empirical evidence indicating that the likelihood of repartnering is lower for mothers with resident children relative to single women with no children, studies which have investigated the effect of **increasing numbers of children** have obtained mixed results. Several studies have found a negative effect of increasing numbers of children on the likelihood of repartnering (Ermisch et al., 1990; Ermisch and Wright, 1991; Lampard and Peggs, 1999). In studies conducted by Ermisch et al (1990) and Ermisch and Wright (1991) it was found that previously married lone mothers with large families including four or more children were much less likely to remarry, but there was no evidence to suggest that smaller family sizes had any effect on the probability of remarriage. Neither of these studies considers the effect of larger numbers of dependent resident children on the formation of a cohabiting second union however. Lampard and Peggs (1999) include both remarriage and cohabitation in their study and find a general decrease in the repartnering rate of formerly married women with increasing numbers of children born before the end of their first marriage, however they focus on general repartnering, rather than that of lone mothers specifically. Findings from general repartnering studies conducted in both the U.S. and Sweden also find negative effects of

increasing numbers of children (Koo, Suchindran and Griffith, 1984; Bumpass et al., 1990; Smock, 1990)[7]

Possible explanations for a negative effect of increasing numbers of children on repartnering emphasize the same economic and social theories put forward to explain the general presence of children. In terms of economic theory it is likely that a higher number of children will result in a new partner being increasingly less willing to take responsibility, both financially and emotionally, of children who are not their own (Ermisch and Wright, 1991). From a social theory perspective, increasing numbers of children will put more demands upon a mothers time further reducing the time she has to search for and develop relationships with potential partners (Ermisch and Wright, 1991). Lone mothers with a larger number of children may also be less likely to be in paid employment and hence have less chance to meet a new partner through the workplace (Lampard and Peggs, 1999). In fact, as highlighted above, De Graaf and Kalmijn (2003) (who consider repartnering using data collected in the Netherlands) found that even just the presence of children at home reduced a formerly married woman's likelihood of repartnering via the workplace. Another theory put forward suggests that perhaps an absence or smaller number of children acts as an incentive to cohabit or remarry in order to provide an appropriate context within which to have (more) children, or with the aim of providing a 'significant other' as a source of intimacy and emotional support (Lampard and Peggs, 1999).

Interestingly, findings from the analysis of Canadian data indicate that an increasing number of children has a positive effect on the chance of repartnering (Le Bourdais et al., 1995). In their study mothers with two or more children upon entering lone motherhood had one and a half times the odds of repartnering compared with women with only one child after controlling for other characteristics. This may result from the fact that route of entry into lone motherhood has been taken into account in their study which is likely to be related to the effect of children on repartnering. Some support for this finding of a positive effect of more children on repartnering has been found by the study carried out by Böheim and Ermisch (1998) where, among previously married lone mothers, those with more children were more likely to move into a cohabitation[8]. In

---

[7] In the study by Koo et al (1984) this is only significant for white women.
[8] This finding comes from their multivariate analysis using the BHPS life history data. Their analyses using the panel data (presented in the same report) found no effect of increasing numbers of children on repartnering of previously married or never-married lone mothers.

contrast to both positive and negative effects of increasing numbers of children, other studies find no effect of number of children on repartnering (Ford et al., 1998; Payne and Range, 1998). This finding is supported by Wu and Schimmele (2005), in their study of repartnering after first union disruption using Canadian data.

Contrasting results have also been found with respect to the **ages of children** and their influence on repartnering. A number of studies have found no effect of age of youngest child on the probability of remarriage or repartnering for previously married or never-married lone mothers (Ermisch and Wright, 1991; Böheim and Ermisch, 1998). General repartnering/remarriage studies carried out by Bumpass et al (1990) (U.S.) and Wu and Schimmele (2005) (Canada) provide support for this finding; non-significant effects were found for age of youngest child and presence of children under six years old respectively. However, Payne and Range (1998) found that lone mothers with children aged five and over were significantly more likely to repartner than those with children below this age. Extending their analysis to consider the effects of each predictor variable on the likelihood of finding a new partner versus getting back together with their former partner, Payne and Range (1998) find that lone mothers with older children were more likely to find a new partner, whereas returning to a former partner was more likely for those with children less than 12 months old. Research by Finlayson et al (2000) supports this finding; lone mothers with two or more children below age five are significantly less likely to repartner than those with one or none. Results from repartnering studies conducted in the Netherlands and Italy replicate this finding of an association between very young children and a lower chance of repartnering (Poortman, 2007; Meggiolaro and Ongaro, 2008). Conversely, Ford et al (1998) and Marsh and Vegeris (2004) find that those with children under five in 1991 are more likely to find a partner. Interestingly, Le Bourdais et al (1995) found an interaction between route of entry into lone motherhood and the age of youngest child in their study of repartnering of lone mothers in Canada. For separated and divorced lone mothers (including those separated from a cohabiting relationship) the likelihood of repartnering increased as age of youngest child increased up to age six (after which it stabilized), whilst for those becoming a lone mother through giving birth to a baby outside of a partnership or through widowhood, the chance of repartnering decreased significantly once the youngest child reached two years (Le Bourdais et al., 1995).

Hypotheses put forward to explain the effect of age of children on repartnering again relate back to economic and social theories; younger children increase the costs to a potential partner and place additional demands on a mother's time limiting her opportunities to meet a new partner. Qualitative research supports these theories indicating that younger children limit the time a mother has to search for a partner and may deter potential new partners who have already been through the childbearing process (Lampard and Peggs, 1999). However, Finlayson et al (2000) suggest that lone mothers themselves may be less inclined to introduce a step-father into the household whilst children are very young. The positive effect of very young children on repartnering of single and widowed lone mothers in the study by Le Bourdais et al (1995) is suggested to be due to a higher inclination of such mothers to find new partners quickly or that potential new partners might be less put off by taking on younger children when the father is dead or totally absent. Payne and Range (1998) explain their findings by suggesting that men are less likely to want to partner a woman with young children that are not their own, but may be encouraged to return to a partner who has given birth to a child which is their own.

Canadian research has also investigated the effect of step or adopted children and whether a woman was pregnant on the likelihood of repartnering among all individuals (Wu and Schimmele, 2005). Their findings suggest that the presence of step or adopted children has no effect on the likelihood of repartnering for women, but a pregnancy has a positive effect on remarriage. This is perhaps not surprising considering the finding by Berrington and Diamond (2000) of a positive effect of a pre-marital conception on the probability of first marriage. A potential explanation might be a desire to repartner on behalf of the woman in order that children are raised in the normative context of a two-parent family. Payne and Range (1998), Ermisch and Wright (1991) and Marsh and Vegeris (2004) have investigated births occurring after entering lone motherhood. Ermisch and Wright (1991) find no significant effect of births on the likelihood of remarriage. However, Payne and Range (1998) find that conceiving a child after becoming a lone mother was associated with a reduction in the likelihood of forming either a new partnership or re-forming a partnership with the previous partner. As before, social and economic theories relating to meeting opportunities and 'costs' to the new or former partner are able to provide possible explanations for these findings. In contrast, Marsh and Vegeris (2004) find a positive effect of a subsequent birth on the probability of having a partner in 2001, although it is likely that this contrasting finding

is a result of their chosen modelling strategy (the limitations of which were discussed previously in Section 2.2).

The **way in which a woman becomes a lone mother** is likely to affect repartnering, although findings are again mixed and often the different types of lone mother have been defined in different ways. In terms of the time it takes to repartner, Rowlingson and McKay (1998) find that in general single lone mothers are likely to repartner more rapidly than separated or divorced lone mothers, but this difference was only found for earlier cohorts and by the mid-1980s rates of exit were not dissimilar. This finding holds for lone mothers in Canada with single lone mothers found to have at least one and a half times the odds of repartnering compared with those separated or divorced from a partnership (Le Bourdais et al., 1995). However, Payne and Range (1998), who control for whether or not a lone mother has a co-resident partner in the month preceding entry to lone motherhood, find that those entering lone motherhood through the breakdown of a union repartnered more rapidly than those without a partner upon entering lone motherhood. As they comment, an explanation for this appears to lie in the relatively high proportion of those with a partner in the month prior to entering lone motherhood who are found to return to this former partner upon repartnering. In terms of the type of partnership that broke down, their results indicate that the probability of repartnering does not differ significantly between women who were cohabiting and women who were married prior to entering lone motherhood. This finding is in contrast to a recent repartnering study by Poortman (2007) conducted in the Netherlands (including all individuals and not just lone mothers) which finds a lower probability of repartnering for those divorced from a marriage compared with those separated from a cohabitation even after controlling for the presence of children (a lower rate of childbearing within cohabiting unions might have provided some explanation for this result).

Ford et al (1998), Finlayson et al (2000) and Marsh and Vegeris (2004) examine the effect of prior partnership status on repartnering in their analyses of the PRILIF cohort of lone mothers. Whilst Ford et al (1998) and Finlayson et al (2000) find no effect after controlling for other covariates, namely age of the lone parent, number of children and age of the youngest child, Marsh and Vegeris (2004) find a significant effect for those whose last partnership was a cohabitation. For these lone mothers the probability of having a partner is lower than for the never-partnered, although no significant difference

is found between the never-partnered and those whose last partnership was a marriage or who were widowed. Both Ermisch and Wright (1991) and Böheim and Ermisch (1998) carry out separate analyses of never-married and previously married lone mothers and hence cannot directly compare the probability of repartnering for these two groups of lone mothers. However, there is some suggestion that the way the marriage ended might be important among previously married lone mothers, with separated lone mothers more likely to repartner than divorced lone mothers and widows the least likely to repartner (Böheim and Ermisch, 1998). This finding is in contrast to a recent repartnering study conducted in Italy which finds a higher probability of repartnering for divorced women compared with women separated from marriage (Meggiolaro and Ongaro, 2008).

The determinants of repartnering might also differ by the route of entry into lone motherhood. The fact that different factors were found to be important when separate analyses for never-married and previously married lone mothers have been conducted (e.g. Ermisch and Wright, 1991; Böheim and Ermisch, 1998) provides evidence that the process of repartnering is indeed different for these different groups of lone mothers – not only is there likely to be a difference in the time it takes to find a new partner, but different factors are also involved in each case. Results from a repartnering study by Pevalin and Ermisch (2004) suggest that the factors involved in repartnering for previously cohabiting individuals compared with previously married individuals might also be different. They find poorer mental health is associated with a lower likelihood of repartnering after the dissolution of a cohabiting union, but has no effect on the likelihood of repartnering after the dissolution of a marriage.

Previous union history is likely to affect the probability of repartnering for lone mothers, although few studies have considered the role of the 'relationship career' in relation to union formation (Poortman, 2007). Several studies have considered the **duration of the prior union** as a predictor of repartnering for lone mothers, with findings suggesting a positive effect of a longer duration of previous union on the likelihood of repartnering (Ermisch et al., 1990; Ermisch and Wright, 1991). Supportive findings are provided by repartnering studies conducted in Canada, the Netherlands and Sweden (Wu and Balakrishnan, 1994; Bernhardt, 2000; De Graaf and Kalmijn, 2003; Wu and Schimmele, 2005; Poortman, 2007). The reason for this could

be that "women with unobservable characteristics favourable to marriage would tend to have been married longer than other women whose first marriage ended", hence the duration for marriage could be a proxy measure for these unobservable traits (Ermisch and Wright, 1991; 148). Bumpass et al (1990) furthers this highlighting that the skills that they are likely to have invested more time into during marriage, such as home production skills, are less useful to them when single, but are easily transferable to a new marriage. However, Bumpass et al (1990) find no effect of prior union duration in their study of remarriage using U.S. data once other factors were controlled for. Additionally, Koo et al (1984) found a negative effect of prior union duration on the chances of remarriage in the U.S., suggesting that this may be due to women with longer marital durations being out of the remarriage market for longer.

The **number of previous unions** is also likely to influence the probability of repartnering, although this has not previously been considered in relation to repartnering of lone mothers. A break-up may mean a lone mother is less inclined to find a new partner for fear of getting hurt again (Poortman, 2007); may find it harder to meet a new partner given the smaller network of friends generated by time spent in a couple e.g. Kalmijn and Bernasco (2001) cited by Poortman (2007); and previous unions may be used by potential partners as selection criteria Kalmijn (1991) cited by Poortman (2007). Indeed Poortman (2007) finds that the odds of finding a partner for Dutch women are lower if they have already had one (or more) prior unions. However, no significant differences are found between the odds of repartnering for those with one break-up and the odds of repartnering for those with several break-ups.

Given the fact that laws and policies are subject to change from year to year, then the **year in which a woman became a lone mother** might be important in relation to repartnering. Year of entry can also be used as a proxy for social change (Wu and Balakrishnan, 1994). With the changes to divorce laws after the Divorce Reform Act in 1971 allowing a divorce to be obtained with greater ease it was hypothesised by several studies that the likelihood of remarriage after this time may also increase as there would be a larger pool of potential remarriage partners in the marriage market (Ermisch et al., 1990; Ermisch and Wright, 1991). In fact, both these studies found this to be the case, with higher remarriage propensities for lone mothers whose marriages ended after 1971. Analyses by Böheim and Ermisch (1998) using an indicator for year of entry to lone motherhood provide further evidence (as was suggested above by comparing life-table

estimates in Section 2.3.1) that the duration of lone parenthood has been getting shorter. Conversely, Lampard and Peggs (1999) considered the year of divorce in their study of repartnering of the formerly married but found no significant effect on the likelihood of remarriage for these women.

The probability of repartnering is also likely to change with increasing **time spent as a lone mother**. Indeed a number of studies have investigated 'duration dependence', where the likelihood of leaving lone parenthood declines as time since entering lone parenthood increases (Ermisch et al., 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Payne and Range, 1998; Rowlingson and McKay, 1998; Finlayson et al., 2000). Ermisch and Wright (1991) find that, among the previously married, the probability of remarriage does not vary with the length of time since entering lone motherhood after controlling for other covariates. However, they do find that the probability of marriage for never-married lone mothers decreases significantly with length of time spent as a lone mother. Other studies have also found a significant negative effect of increasing time since entering lone motherhood on the likelihood of repartnering (Ermisch et al., 1990; Böheim and Ermisch, 1998; Payne and Range, 1998; Finlayson et al., 2000). Rowlingson and Mckay (1998) find that for separated lone mothers the hazard of repartnering rises up to a peak at five years duration and then decreases after this time, but duration is not significant for single lone mothers. Results from general repartnering studies provide further support for the presence of duration dependence (Ermisch, 2002; Pevalin and Ermisch, 2004).

Therefore, the results from previous studies suggest an association between a number of demographic variables and repartnering:

- Age
- Number and ages of children
- Type of lone mother
- Duration of prior union
- Number of prior unions
- Year
- Time spent as a lone mother

It is clear that the age at entry into lone motherhood is key in determining the likelihood of repartnering. Taking account of the *way* in which a lone mother enters lone motherhood and the time she has already spent as a lone mother also appear to be important. However, the precise effect of other characteristics, such as the number and ages of children, the duration of the prior union (if there was one) and the year in which they became a lone mother is not completely clear. Furthermore, the number of prior unions has not been considered at all with respect to repartnering of lone mothers specifically.

2.3.3 The relationship between socio-economic factors and repartnering

As mentioned above, the findings relating to the effect of socio-economic variables on repartnering are also not precisely determined. In terms of economic theory it has been hypothesised that a lower earning potential on the part of a woman is likely to increase the probability of repartnering as the financial gains to repartnering are higher for such women (Becker et al., 1977). Therefore, women who are for example employed at the time of becoming a lone mother, or who have been in employment for a significant proportion of their previous relationship are likely to have less financial need to repartner and will hence repartner at a slower rate than those who are unemployed at the beginning of lone motherhood or have been out of the labour market for the majority of their previous relationship. However, one might argue there are likely to be many reasons affecting a woman's desire to repartner aside from the need for financial support, including personal, social and psychological factors such as love, loneliness, habit or stability as suggested by Bernard (1956) in Mott and Moore (1983). From a social theory perspective, which emphasises the importance of meeting opportunities on repartnering, women who go out to work are likely to meet more people and are likely to meet a suitable new partner more rapidly. Payne and Range (1998) theorise that the higher likelihood of repartnering associated with being in employment may also be due to the ability these women have to contribute to the household budget, which in turn is likely to make them more attractive as potential partners.

Empirical evidence has, however, found varying effects of **employment** on actual repartnering prospects of lone mothers. Ermisch et al (1990) find a positive effect of longer durations in paid employment throughout the first marriage on the chance of remarriage for a lone mother. Ermisch et al (1990) also find that a large amount of

work experience after divorce substantially raises a woman's remarriage rate in the following three years thus reducing the expected duration of lone parenthood. This finding provides further support for the social hypothesis, emphasising the role of opportunities to meet new people. However, his later work (Ermisch and Wright, 1991) found no effect of work experience (either during the first marriage or subsequently after divorce) on the likelihood of remarriage for previously married or never-married women. Still, a strong positive effect was found when considering whether a woman worked in the year prior to divorce – such women were much more likely to remarry than those not employed (Ermisch and Wright, 1991). Again, this provides support for the theory of improved meeting opportunities. In fact Ermisch and Wright (1991) highlight that in some cases the improved opportunity to meet people provided by being in employment may have resulted in some woman meeting another partner during the first marriage, hence encouraging divorce as well as early remarriage. Furthermore, Ermisch and Wright (1991; 149) suggest "the measured impact of employment status may also reflect traits of a woman which make her more attractive in both the job market and the marriage market." Further support for a positive effect of employment on repartnering is indicated by Marsh and Vegeris (2004) who find a positive effect of being in work in 1991 on the probability of having a partner in 2001. A positive effect of an increase in hours of employment between 1991 and 2001 was also significant in their model. Findings from the Netherlands also suggest a positive effect of employment on repartnering (Poortman, 2007).

Conversely, Finlayson et al (2000) find a negative effect of being in paid employment on the likelihood of repartnering after controlling for other factors. A study carried out by Le Bourdais et al (1995) analysing the determinants of repartnering for lone mothers in Canada also found a negative effect of being in employment through the course of lone parenthood on forming a union. Only when the model was re-estimated using the criterion of being employed during the year of entrance into lone motherhood was a positive effect found between employment and repartnering. In fact studies conducted in the U.S and Canada which have considered repartnering in general have also found a negative effect of employment on union formation (Mott and Moore, 1983; Wu and Schimmele, 2005). In Mott and Moore's (1983) study, American women who were not working were the most likely to remarry in the first year after divorce in comparison to those working full-time, who in that first year had well below average remarriage propensities. Mott and Moore (1983) find no association with being employed prior to

divorce and the probability of remarriage however, as in the study by Ermisch and Wright (1991) detailed above. Negative findings show support for the economic hypotheses highlighted above and suggest an 'independence' effect whereby women who are employed are more economically independent and therefore are less likely to repartner.

In addition, some studies have found no relationship between employment and repartnering of lone mothers (Böheim and Ermisch, 1998; Ford et al., 1998; Payne and Range, 1998; Rowlingson and McKay, 1998). Further to this, a general remarriage study carried out by De Graaf and Kalmijn (2003) finds no effect of employment (whether measured as the proportion of marriage spent in employment or labour force participation after divorce) for Dutch women. Interestingly, a competing risk analyses allowing for the different means of meeting a spouse revealed that the insignificant effects of labour force participation were the result of opposite effects in different settings. Whilst the effect of labour force participation was strong and statistically significant on the risk of finding a partner at work, it was not significant for meeting a spouse via leisure activities or in other ways. As De Graaf and Kalmijn (2003; 1490) highlight, "if the work effect has a financial interpretation, labour force participation should also affect repartnering for these two non-work settings. That the effect is absent in these two equations supports the social interpretation and contradicts the financial interpretation of labour force participation." Indeed, a competing risk analysis by Payne and Range (1998) which compared the factors associated with finding a new partner versus resuming a relationship with the former partner provides further support for this finding. In this model Payne and Range (1998) find a significant effect of being in employment on finding a new partner, but no significant effect of employment status on getting back together with a previous partner.

Findings with respect to **education** are again somewhat contradictory. Considering the hypotheses discussed above concerning economic theory, one might expect that increasing education, as it can be seen as a proxy for potential wage or general career orientation (Mott and Moore, 1983), is likely to be associated with a slower rate of repartnering. As Mott and Moore (1983) highlight, a higher level of education is likely to correspond to a higher wage in the labour market and hence allow a woman to support herself economically outside of marriage. In addition, the more highly educated the woman, then the more restricted becomes the supply of available highly educated

men (Goldman, Westoff and Hammerslough, 1984 cited by Bumpass et al., 1990). However, one might also hypothesise that a higher level of education could have a positive effect on repartnering as women with a higher earning potential might be more attractive to a male partner (Payne and Range, 1998).

A number of studies have considered the role of education in determining the likelihood of repartnering for lone mothers (Ermisch et al., 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Payne and Range, 1998; Finlayson et al., 2000; Marsh and Vegeris, 2004). Several of these studies find no significant effect of education on repartnering of lone mothers (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Finlayson et al., 2000). However, Ermisch et al (1990) find lone mothers with higher educational attainment have a higher probability of remarriage. There is some support for this finding in analyses by Finlayson et al (2000), although the covariate failed to reach formal significance. Marsh and Vegeris (2004) find an effect of education, but the relationship is not straightforward. Payne and Range (1998) consider a general ability test score rather than education level per se, but again they find no clear pattern in effect of this variable in relation to repartnering. In their model allowing for different exits from lone parenthood (finding a new partner versus returning to a former partner) the effect of this score is stronger, although the relationship is complex (Payne and Range, 1998). Payne and Range (1998) find that women in the lowest ability category appear to be the least likely to find a new partner; discounting this category however reveals an inverse relationship between finding a new partner and ability. Interestingly, those in the lowest ability band were the most likely to return to a previous partner (Payne and Range, 1998).

Findings from a Canadian study of repartnering of lone mothers (Le Bourdais et al., 1995) provide some support for the positive effect of education on repartnering indicated by Ermisch et al (1990). Lone mothers with postsecondary education had a 26 per cent higher chance of forming a union compared with those with less than nine years of schooling. However, it is only those single mothers that completed some postsecondary education who are more likely to form a union (Le Bourdais et al., 1995).

Education has not been considered in general remarriage or repartnering studies in the U.K., but has been examined in studies of remarriage/repartnering conducted in other countries (Mott and Moore, 1983; Koo et al., 1984; Bumpass et al., 1990; Smock, 1990;

Wu and Balakrishnan, 1994; Bernhardt, 2000; De Graaf and Kalmijn, 2003; Wu and Schimmele, 2005; Poortman, 2007; Meggiolaro and Ongaro, 2008). As with the studies of repartnering of lone mothers, results have been mixed. Many studies again find no effect of education on general remarriage or repartnering of women (Bumpass et al., 1990; Wu and Balakrishnan, 1994; Bernhardt, 2000; De Graaf and Kalmijn, 2003; Poortman, 2007; Meggiolaro and Ongaro, 2008). Some studies have found a positive effect of increasing education on the likelihood of remarriage or repartnering (Smock, 1990; Wu and Schimmele, 2005). However, ethnicity proves to be an important related factor in the study by Smock (1990), with findings indicating that education is only a significant predictor of remarriage for white women. Other studies have found a negative effect of increasing education on remarriage (Mott and Moore, 1983; Koo et al., 1984) Again as indicated by Smock (1990), Koo et al (1984) find no significant effect of education on remarriage among black women.

School enrolment has also been considered, but results are inconsistent; Wu and Schimmele (2005) find a negative effect of school enrolment on repartnering, but Poortman (2007) finds no significant effect. Theoretically one might presume that women enrolled in school are likely to be very young and are perhaps more likely to be concentrating on their studies rather than trying to find a partner.

Welfare receipt is likely to be associated with repartnering, with several studies considering the impact of receipt of benefits (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Ford et al., 1998; Finlayson et al., 2000) Given that benefits provide a source of income outside marriage and that receipt of certain benefits may terminate upon repartnering, it is expected that those receiving more benefits will be less likely to repartner (Ermisch and Wright, 1991). Empirically, Ermisch and Wright (1991) do not find this to be the case; surprisingly it appeared that higher welfare benefits had, if anything, a tendency to encourage remarriage and this was found despite varying re-specifications of their model. As Ermisch and Wright (1991; 145) highlight, "while there must be concern that the impacts of the women's real wages and real welfare benefits are spurious, there is certainly no evidence that higher welfare benefits discourage remarriage, which we would expect from economic reasoning."

Conversely, Ford et al (1998) and Finlayson et al (2000) found a significant negative effect of receipt of Income Support on repartnering of lone mothers. Ford et al (1998) also considered receipt of maintenance in relation to repartnering, finding a similar

result to that of Income Support - a small but significant negative effect. Böheim and Ermisch (1998) find the effect of benefit receipt depends on the type of lone mother; whilst they find no effect of receipt of Income Support or maintenance on repartnering of previously married lone mothers, there is some suggestion of a negative effect of Income Support on partnering of never-married lone mothers (although this effect is not statistically significant). Both Ford el al (1998) and Finlayson et al (2000) considered the effect of receipt of Family Credit on repartnering, but neither study found any significant effect.

A negative effect of welfare receipt has also been indicated by a number of remarriage/repartnering studies conducted in the U.S. and the Netherlands (Hutchens, 1979; Mott and Moore, 1983; De Graaf and Kalmijn, 2003). Interestingly in the study by De Graaf and Kalmijn (2003) this negative effect was found to only exist in the remarriage equation and not the equation for re-cohabitation when a competing risk model was carried out. Therefore, there is a reduced likelihood of remarrying for women receiving welfare or alimony payments, but no reduction in their likelihood of re-cohabiting. As De Graaf and Kalmijn (2003) highlight, this is due to the fact that cohabitation is not officially recognised as marriage for the period they consider in their analyses and hence such welfare and alimony payments were portable to a new relationship, as long as it remained a non-marital one. Considering that the benefits lone mothers are likely to receive in this country, such as Income Support and Housing Benefit, will change or terminate upon cohabitation as well as marriage, then it is unlikely that the effect of benefit receipt will differ depending on the type of union formed for lone mothers in the UK.

The relationship between **income level** and repartnering has been examined in some studies, although no significant effects have been found (Böheim and Ermisch, 1998; Ford et al., 1998). The same result is found when considering self-perceived financial situation (Böheim and Ermisch, 1998). However, Marsh and Vegeris (2004), who consider the effect of being in hardship in 1991, find this has a significant negative effect on the chance of having a partner in 2001. The findings from remarriage/repartnering studies conducted in other countries replicate what has been found by the majority of studies which have considered only lone mothers – no significant effect on repartnering is found for either the **female contribution to family income during marriage** (De Graaf and Kalmijn, 2003), **self perceived financial**

situation (Mott and Moore, 1983; De Graaf and Kalmijn, 2003) or **economic status** (defined by the individuals occupation) (Poortman 2007).

Social class has been investigated in several studies and again the evidence surrounding the effect of this variable on repartnering is mixed. Ermisch et al (1990) found that previously married women who had been in non-manual occupations before their first birth were more likely to remarry and hence had a shorter duration of lone parenthood than those in other occupations. As they comment, these women were more likely to be in paid employment at the end of their first marriage which therefore gave them better opportunities of meeting a new partner. Similarly, this positive effect on repartnering for women from higher occupational classes was also found in a general repartnering study by Lampard and Peggs (1999). However, the coefficient relating to professional females was not in line with this – this group of women had a significantly lower likelihood of repartnering compared with other women. The study by Ermisch and Wright (1991) finds that previously married women who were in manual occupations before the birth of their first child have lower remarriage rates, although the coefficients are only significant at the 10 per cent level. Analysis by Rowlingson and Mckay (1998) of the remarriage patterns of lone mothers revealed no significant association between the occupation of the woman's father and her duration of lone parenthood.

Health has rarely been examined in relation to repartnering. Ford et al (1998) found that a change in health status over the period of the study was associated with a move out of lone parenthood, although this referred to changes either for the worse or for the better. That a change for the worse might result in leaving lone parenthood is slightly surprising given that later remarriage probabilities are more likely to be related to socio-demographic characteristics in the market supply pool and health is often associated with higher remarriage probabilities (Mott and Moore, 1983; 432). In fact, in their study of remarriage differentials in the U.S., Mott and Moore (1983) found evidence to suggest that health problems have a negative effect on remarriage for white women.

Pevalin and Ermisch (2004) examine mental health in relation to repartnering of all individuals using scores from the General Health Questionnaire. They find that, for those who had previously cohabited, there was a suggestion that poorer mental health was associated with a lower likelihood of repartnering, though there was no difference

between GHQ categories. However, there was no significant association at all between this measure of mental health and repartnering for the previously married. Finlayson et al (2000) include a control for whether or not a lone mother's child has a long-term illness or disability, finding that the presence of such a child reduces the rate of repartnering significantly.

Home ownership may improve a lone mother's attractiveness in the repartnering market from an economic perspective (Payne and Range, 1998; Rowlingson and McKay, 1998). Conversely, such economic independence may mean they have less desire to find a new partner (Payne and Range, 1998). **Housing tenure** is also often used as a measure of social disadvantage (Rowlingson and McKay, 1998). The effect of housing tenure on repartnering has been investigated by several studies (Böheim and Ermisch, 1998; Payne and Range, 1998; Rowlingson and McKay, 1998; Marsh and Vegeris, 2004). The study by Böheim and Ermisch (1998) finds no effect of housing tenure on the chance of repartnering for either previously married or never-married lone mothers. Co-residence with parents is also not a significant determinant of repartnering for never-married lone mothers (Böheim and Ermisch, 1998). Both Rowlingson and Mckay (1998) and Payne and Range (1998) find that women who owned their own homes were actually the most likely to leave lone parenthood. In the study by Rowlingson and Mckay (1998) this was in comparison to those who either lived with their parents or who rented, whereas in the study by Payne and Range (1998) this was in comparison to social tenants; those who were living with their parents had an even lower likelihood of repartnering compared with social tenants in their study. Payne and Range (1998) suggest the lower likelihood of repartnering for those living with their parents may be due to several reasons - dependence on the parents by the lone mother, perhaps through ill health or disability; or the parents themselves having problems and relying on their daughter for the provision of care. In contrast Marsh and Vegeris (2004) find a positive effect of being a social tenant in 1991 on having a partner in 2001.

Ethnicity may be important in relation to repartnering of lone mothers; however the relatively small proportion of lone mothers who are of ethnicities other than white British hinders statistical analyses of ethnic differentials in the likelihood of repartnering[9]. A number of studies have considered the ethnicity of a lone mother

---

[9] Though there are high rates of lone parenthood within certain ethnic groups, particularly Afro-Caribbean women.

(Böheim and Ermisch, 1998; Payne and Range, 1998; Rowlingson and McKay, 1998; Finlayson et al., 2000). Whilst none of the studies find a statistically significant effect of ethnicity on repartnering, Böheim and Ermisch (1998) find some suggestion that among never-married lone mothers, non-white lone mothers partner at a slower rate than white lone mothers. However, Finlayson et al (2000) find a positive and almost statistically significant effect of being British Afro-Caribbean on the probability of repartnering.

Payne and Range (1998) and Rowlingson and McKay (1998) also investigated the effect of **geographical location** on repartnering of lone mothers. Whilst Rowlingson and McKay (1998) find no effect of area on the chance of repartnering, the findings with respect to region of residence considered by Payne and Range (1998) indicate a higher probability of repartnering for lone mothers living in London and other southern counties, compared with women living in other parts of Great Britain. Their competing risk analysis revealed this was only significant for lone mothers finding a new partner and had no effect on whether a lone mother re-formed a relationship with a previous partner. They suggest their findings might be the result of improved density or mobility of the population in London and the South making it easier to meet new people, or perhaps the generally lower unemployment rates provide men with more financial security making them more likely to take responsibility for a lone mother and her children (Payne and Range, 1998).

A relationship between **religion** and the formation of marital and cohabiting unions has been established (Thornton, Axinn and Hill, 1992). However, the precise effect of religion on repartnering differs from study to study. Furthermore, the effect of religion on repartnering of lone mothers has not been considered in any of the previous studies. Research conducted in the U.S and Canada suggests the probability of remarriage is lower for Catholics than those of other religious faiths (Koo et al., 1984; Wu and Schimmele, 2005). In terms of the formation of cohabiting unions, Wu and Schimmele (2005) find that the chance of entering this type of second union is higher for those with no religious affiliation. However, earlier work by Wu and Balakrishnan (1994) found no effect of religion on the propensity to cohabit after marital disruption. De Graaf and Kalmijn (2003) consider the effect of church attendance as well as church membership in their study of union formation after divorce in the Netherlands. Their results suggest that more frequent church attendance is associated with a higher chance of repartnering

for divorced women. The effect of church membership on the chance of forming a cohabiting union after divorce is negative and significant, but non significant for remarriage.

To summarise, there are a number of socio-economic covariates that have been investigated with respect to repartnering:

- Employment
- Education
- Welfare receipt
- Income and self-perceived financial status
- Social class
- Health
- Housing tenure
- Ethnicity
- Geographical location
- Religion

As with several of the demographic variables, the results relating to the effect of socio-economic factors on repartnering have been contradictory and at times insufficient to provide conclusive evidence.

2.4 Discussion and analytical framework

This review has highlighted that there has been relatively little U.K. research which has analysed the dynamics of lone parenthood, particularly with respect to repartnering of lone mothers and hence the duration of lone parenthood. Research in recent years is also sparse; many of the previous studies are now at least ten years old. Furthermore, as highlighted in Section 2.2, a number of limitations with existing research can be identified. Despite this, the current literature base does provide us with some information relating to the determinants of repartnering, albeit at times contradictory. Specific demographic characteristics appear to be key in predicting a move out of lone motherhood, most notably age at becoming a lone mother, with over-riding evidence to

suggest that those who become lone mothers at younger ages repartner at a much faster rate than those entering lone motherhood at later ages. It is also clear from previous studies that the way in which a lone mother entered lone motherhood needs to be considered when determining the timing to repartnering of lone mothers. Yet this is something which has not always been fully accounted for in prior research. The relationship between socio-economic factors and the likelihood of repartnering for lone mothers is less clear still than that found for demographic characteristics. This study therefore aims to address the limitations identified with previous studies and to provide more evidence relating to the factors associated with the repartnering of lone mothers to add to the current knowledge base. The prospective nature of the BHPS, the availability of a large number of waves of data and the inclusion of a large selection of variables at each wave will allow a comprehensive analysis of the repartnering of lone mothers in the UK at a time when renewed estimates of the timing and determinants of repartnering are clearly needed.

Figure 2.1 Routes out of lone motherhood
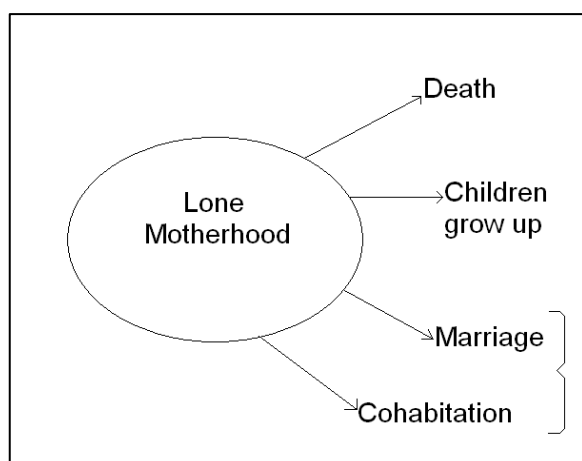
Figure 2.1 identifies the routes out of lone motherhood and highlights the four main routes out of this state. The events of interest in this analysis are marriage and cohabitation, with women leaving lone motherhood through death or through their children growing up treated as censored in subsequent analyses.   As previously identified in Chapter 1, a key aim of this study is to examine the factors which are associated with the timing to repartnering. The literature reviewed in this chapter suggests a number of different factors that are likely to be important and many of these are to be examined in this study, as can be seen in Figure 2.2 below (see Chapters 6 and 7 for results of these analyses).

Figure 2.2 Analytical Framework for the analysis of repartnering among lone mothers

Demographic variables:
* Age at entry to lone motherhood
* Number of children
* Age of children
* Type of lone mother
* Duration of prior union
* Number of previous unions
* Year
* Time as a lone mother

Socio-economic variables:
* Employment
* Education
* Benefit receipt
* Income
* Self-perceived financial status
* Social Class
* Health
* Housing tenure
* Ethnicity
* Geographical location
* Religion

(Re)marry or (Re)cohabit
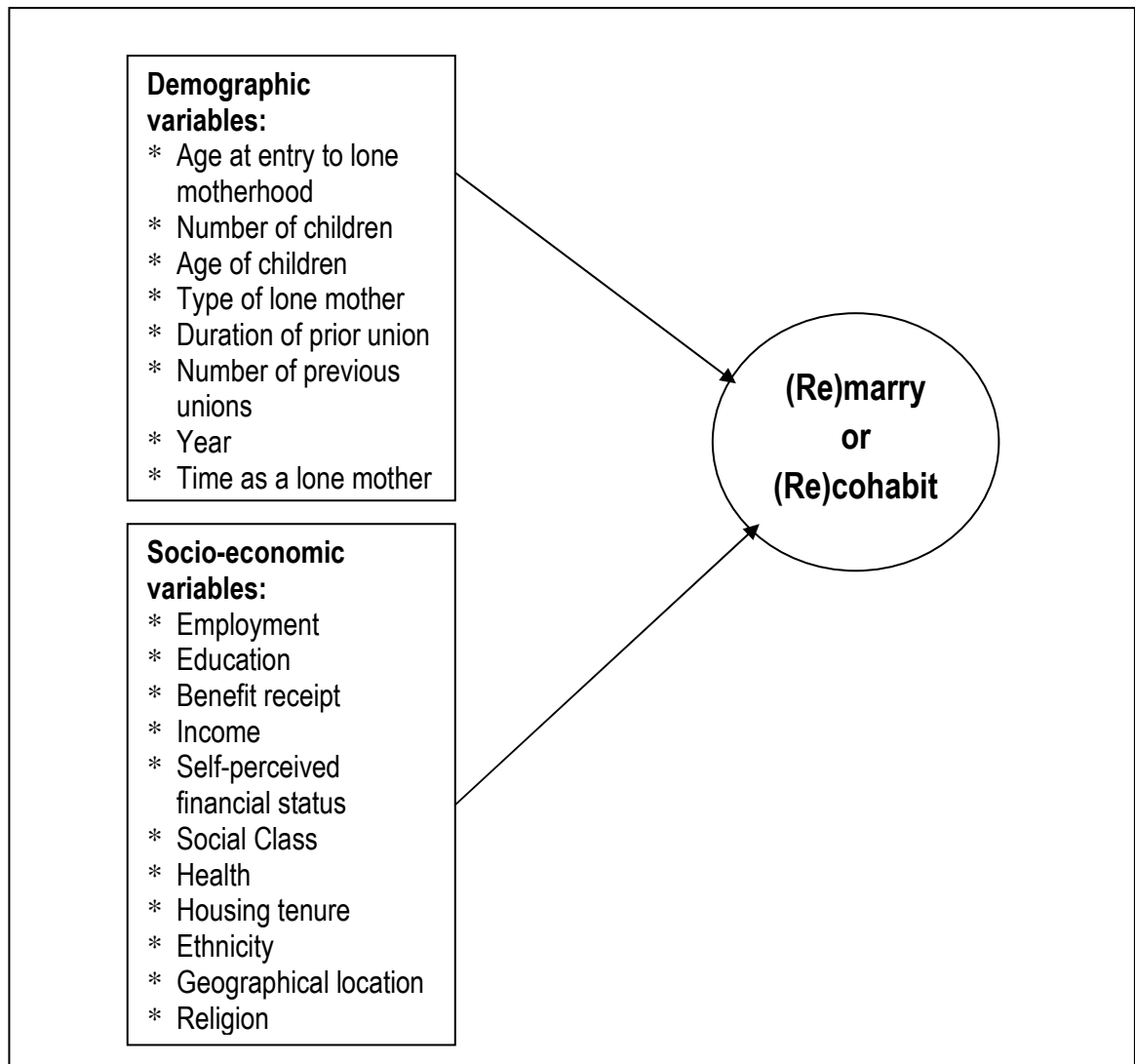
Therefore, this chapter has provided a rationale for the current study by identifying a number of limitations with previous research pertaining to the dynamics of lone parenthood. A clear issue indicated by this review is the lack of research in this area in recent years. However, the question *why* it is important to investigate repartnering among lone mothers still remains. The transition into a new partnership might occur alongside other changes, such as a change in economic circumstances, for example. Hence, repartnering is likely to have important implications for the overall well-being of a lone mother. The next chapter reinforces the motivation for this study by considering existing research on the association between repartnering and well-being of lone mothers.

Chapter 3

Repartnering and well-being of lone mothers:
Key issues, questions and hypotheses

3.1 Introduction

The preceding chapter provided a review of previous research which has investigated the relationship between demographic and socio-economic factors and the likelihood of repartnering for lone mothers. Whilst it offered some justification for this research in terms of updating the current knowledge base and addressing limitations with previous studies, this chapter strengthens the rationale for this study by considering the existing knowledge relating to the association between repartnering and well-being of lone mothers. The association between poverty and lone parenthood is a well established fact with statistics on 'low income families' consistently showing that lone parent families are at a greater risk of poverty than couple families (Millar, 1989). Furthermore the work of Jenkins, Rigg and Devicienti (2001) has identified that lone parent families have the highest rates of persistent poverty of all family types. In 2005 lone parent families were nearly four times more likely than couple families to be living in social housing and nearly seven times more likely to be in the lowest income quintile with respect to total family income (Hoxhallari, Conolly and Lyon, 2007). Comparisons such as these imply that repartnering might offer some improvements to the well-being, particularly in economic terms, of lone parent families. Some research (see for example Ford et al., 1995; Finlayson et al., 2000; Vegeris and Perry, 2003) has been carried out to investigate the association between repartnering and various aspects of well-being of lone mothers in the U.K. However, much of this work has been carried out using two sources of data: follow-up data from a cohort sample of lone mothers drawn from the Department of Social Security (DSS)/Policy Studies Institute (PSI)

Survey of Low Income Families in 1991 as part of their Programme of Research into Low Income Families (PRILIF) and data collected from the Survey of Low Income Families (SOLIF) series beginning in 1999 (which has now become the Families and Children Study (FACS)). Furthermore, this research has mainly considered changes in material well-being with less focus on non-material well-being.

The main aim of this chapter is to provide a review of existing literature on repartnering and well-being of lone mothers in Britain. Within the literature review the bodies of work which have investigated this topic will be discussed, as well as the limitations of these studies and the relevant findings from their research. Finally, a number of hypotheses relating to the expected results from the statistical analysis (which are the subject of Chapter 10) are outlined.

3.2 Defining the concept of well-being

The term 'well-being' is a broad term which is often used, but encompasses many different aspects which contribute to a person's overall quality of life, such as health, happiness as well as economic resources. Indeed as Bowling (2005) highlights, "Quality of life cannot be equated with just one dimension of well-being – it is the subjective sum of multiple physical, emotional, social and objective dimensions of one's life". Ferriss (2002) distinguishes between material and non-material dimensions of well-being, describing the former as "the physical support to life, to the attainments that make acquisition of physical attributes possible", providing the examples of education, economic power and good health. The latter is described as the psychological element to life, including happiness, enjoyment and satisfaction.

This study examines changes which occur within three domains, namely economic, demographic and health which are likely to impact on well-being. Within the economic domain a subjective measure of a change in financial situation is used, rather than a more objective measure such as looking at changes in household income. Although this is largely as a result of missing household income data (see Section 10.1.1) which prevented the analysis of changes in family income, this measure is arguably more meaningful since any change seen in terms of household income will not be able to tell us anything about the distribution of resources within the household itself. Moreover,

income level is not necessarily related to how satisfied an individual is with their financial situation (Stack and Eshleman, 1998). It is hoped that a more subjective measure will pick up changes relating specifically to the financial well-being of the lone mother herself upon repartnering and whether she considers her situation to have improved. Furthermore, as Ford et al (1995: 34) discuss in relation to what people thought about their changing fortunes in the PRILIF studies "people bring a much wider framework of judgment to these guesses than the narrowly material, however much the questions are framed in a financial context". Therefore, it is possible that this analysis might be able to pick up on changes in non-material well-being as well as those relating to material well-being.

Changes in the number of dependent children in the household will be considered within the demographic domain and will highlight whether repartnering is associated with any additional needs in the household, such as providing for a new baby or incoming step-children. Furthermore, an examination of the occurrence of a household move and any tenure change will provide evidence as to whether repartnering is associated with a change or even an improvement in housing circumstances. Finally, within the health domain a change in mental health (as measured by a change in GHQ score) is investigated in an attempt to specifically examine changes in the non-material dimension of well-being of lone mothers and the relationship of any change with repartnering.

3.3 Existing research relating to the well-being of lone mothers and the impact of repartnering on well-being

It is clear from Chapter 1 that much of the research on lone parents in Britain in recent years has been carried out in the area of social policy. It is mainly this body of work which has considered the well-being of lone mothers, examining how this has changed over time and considering how repartnering is associated with a lone mother's well-being. The following section describes the various studies which have been conducted; Section 3.5 will discuss the findings from this research.

The work of Millar (1989) was the first study to consider in detail the incomes of lone-parent families and to investigate the effects of living on a low income for their living

standards. Using the 1978 Family Finances Survey and its follow up, the Family Resources Survey, conducted one year later, she was able to investigate changes in family income over time with a focus on which families were able to 'escape' from poverty (as defined by the study). In particular the study wanted to consider the effect of a change in a lone mother's marital status on their income levels. Not long after, Bradshaw and Miller (1991), in their study of lone parent families in the UK commissioned by the Department for Social Security (DSS), examined the incomes and employment status of a flow sample of repartnered lone mothers no longer in receipt of Income Support, with a stock sample of lone parents receiving Income Support in order to determine 'outcomes' deriving from repartnering.

Following this survey McKay and Marsh (1994) investigated the material wellbeing of lone mothers using a sample of 800 low-income lone parents drawn from the Survey of Low Income Families carried out in 1991, supplemented with another 100 high income lone mothers in order to obtain a nationally representative sample of lone mothers at that time. This sample of lone mothers was then traced and re-interviewed in 1993, 1994, 1995, 1996, 1998 and 2001 as part of the PSI's Programme of Research into Low Income Families (PRILIF). The study by McKay and Marsh (1994) is therefore the first in a number of studies (Ford et al., 1995; Ford et al., 1998; Finlayson et al., 2000; Marsh and Perry, 2003; Marsh and Vegeris, 2004) which have investigated the circumstances of this particular cohort of lone mothers and how these have changed over time. Furthermore, as a result of the changing marital statuses of these lone mothers over the course of time these studies have been able to investigate the relationship between repartnering and a lone mother's well-being.

In 1999 PSI conducted another survey of low-income families with children, with the main aim to re-investigate the influence of Family Credit, as well as other measures designed to encourage work, on moves into employment and remaining in employment for low-income families with children (Marsh et al., 2001). Unlike the Survey of Low Income Families carried out in 1991, this survey was designed to be the first in a series of surveys from the outset, and is now known as the Families and Children Study (FACS). Survey respondents have been interviewed each year from 1999, but in each year the sample is refreshed with new families (those becoming a family as a result of the birth of a baby, or 'in-movers' which includes families new to the sample areas) in order that it remains representative of all families (Conolly and Kerr, 2008). In 1999

and 2000 the survey sample included all lone parent families, but was restricted to include only low/moderate income couple families. However, this criterion was abolished in 2001, from which time onwards the higher-income couples were also included in the sample and hence the survey became representative of all British families (Conolly and Kerr, 2008). The longitudinal element of this survey has therefore permitted research into the changing circumstances of lone parent families over time and the influence of repartnering on other outcomes relating to their well-being, such as their income, moves into employment, changes in benefit status and changes in their number of dependent children (see Marsh et al., 2001; Marsh and Rowlingson, 2002; McKay, 2002; Kasparova et al., 2003; Marsh and Perry, 2003; Vegeris and Perry, 2003).

Finally, research on poverty dynamics in the U.K. has examined repartnering in relation to financial well-being of lone mothers. Both Jenkins (2000) and Jenkins, Rigg and Devicienti (2001) have investigated the effects of demographic events, including repartnering, on moves out of poverty for lone parent families using data collected by the BHPS for the years 1991-1996 and 1991-1999 respectively.

3.4 Limitations with previous research on well-being and repartnering

One potential limitation with previous research on well-being and repartnering is therefore that much of it has focused on just two datasets: the PRILIF cohort sample of lone mothers and the SOLIF/FACS survey series. Another is that it has concentrated on changes in material well-being as a result of repartnering – in particular financial well-being, with far less attention paid to non-material dimensions of well-being that might be associated with repartnering such as changes in mental health or more subjective measures of well-being. As highlighted above, there are many different aspects of well-being which contribute to quality of life and therefore concentrating on just one provides a narrow view of the outcomes of repartnering overall. Furthermore in these studies the use of multivariate statistical models, which permit the assessment of particular associations in the presence of other control variables and can be used to examine interrelationships between a number of different variables, has been confined to predicting changes in financial well-being – such as movements into work, off benefits or out of a defined index of hardship. This research is undeniably important,

but it is still important to consider other changes relating to well-being, such as the birth of a new child, a household move, or a change in health status (physical and mental) in a multivariate framework, especially since interrelationships between many of these variables are likely to exist. Despite this, variables other than those relating specifically to financial well-being have often only been considered independently of each other.

3.5 Findings from previous research into the association between repartnering and well-being of lone mothers

Financial well-being and repartnering

As previously stated above, lone parent families have been found to be more vulnerable to poverty than couple families (e.g. Millar, 1989; Jenkins et al., 2001) and this is as a result of factors such as their lower participation in the labour market, or even when they are in employment, their poorer earning potential as a result of fewer skills and the restricted hours they are able to work (Ford et al., 1998; Finlayson et al., 2000). It would therefore be logical to presume that a lone mother who finds a new partner might experience an increase in family income upon him moving into the household. For example, if the new partner is employed, whether or not the lone mother is working herself, this would provide an extra income for the household. However, one could imagine that repartnering with a new partner who is unemployed might result in no change in the income of the household, or even a decrease with resources stretched to accommodate another person.

The relationship between repartnering and financial well-being has been investigated in a number of studies and using a variety of different methods. Some studies have investigated the relationship between family income and repartnering. For example, Millar (1989) found that of those lone parents that managed to escape poverty (as defined by the authors), around half did so by finding a new partner and half by entering employment. Furthermore these new two parent families were the most likely of all family types (including those remaining lone parents and those beginning in couples) to escape poverty. However, they are careful to point out that the employment status of the new couple (i.e. single earner or dual earner couple) is a significant factor in predicting whether or not a family was able to exit poverty. Bradshaw and Millar

(1991) found the equivalised incomes of lone mothers who had repartnered were higher than those remaining a lone mother and in receipt of Income Support. However, when questioned about whether they felt better off compared with when they were a lone mother 52 per cent stated they felt much or a bit better off, whilst 26 per cent claimed to feel worse off or a lot worse off. Furthermore, the equivalised incomes of those that came off Income Support through repartnering were no higher than those who came off Income Support through finding employment themselves.

Ford, Marsh and Finlayson (1998) found that new partners were often associated with more income entering the household, with eight out of ten lone parents who repartnered in their study having an increase in net income compared with half of those who did not repartner. However, after equivalising income to account for the extra household members the proportion of each group seeing improvements in their income were similar at 47 and 49 per cent. As they comment, this finding therefore provides little support for the view that repartnering might be an important mechanism to lift lone mothers out of poverty. However, Berthoud, Bryan and Berdasi (2004) find that material deprivation[10] is still slightly lower in couple families compared with lone parent families in their study even when the characteristics, including the raw incomes of the families, are similar.

Vegeris and Perry (2003) find that those who were lone parents in 1999, but who had become part of a couple by 2001 experienced a significant increase in median income (equivalised and adjusted for inflation) over this time (median income was 72 per cent higher on average in 2001 compared with 1999). They also investigate changes in a measure of relative material deprivation as well as changes in family finances between the two survey years by relationship status (i.e. remained a lone parent, remained a couple, changed from lone parent to couple or vice versa). Although improvements in material deprivation and family finances were found to be highest for lone parents that moved into couples compared with other relationship sub-groups, the greatest improvements were consistently found for those who repartnered and either remained or moved into work – again highlighting the importance of employment in improving a lone mother's financial situation.

---

[10] Measured using an index constructed from questions under the headings: daily living, financial stress and consumer durables.

A number of the PSI studies (Ford et al., 1995; Marsh et al., 1997; Ford et al., 1998; Finlayson et al., 2000) have investigated changes in an index of hardship formed using a seven point indicator of financial and material stress. A number of these have also used logistic regression analysis to investigate if factors, such as a change in partnership or employment status, are associated with movements out of hardship of the cohort of lone mothers. An early report on this cohort by Ford et al (1995) which just used descriptive statistics to investigate the association between repartnering and hardship (as measured by the index) found no evidence to suggest those finding new partners fared any better or worse than those remaining a lone parent. Their analysis suggested however that the type of new partnership was key in determining any improvement in hardship. Just over 50 per cent of the lone mothers in 1991 who had formed a marriage by 1993 were found to have moved up on the hardship scale (reflecting a reduction in hardship), compared with just over 40 per cent of those who formed a cohabitation who were found to have moved down the scale (reflecting a worsening in hardship).

Ford et al (1998), like Bradshaw and Millar (1991) find evidence to suggest an interrelationship between repartnering and employment status in predicting movements out of hardship. They find that lone parents who were out of work in 1991 and who experienced either a move into a partnership or a move into work of more than 16 hours per week have higher chances of avoiding hardship than those who did not. However, repartnering made little difference to whether or not a lone mother was able to avoid hardship or severe hardship for those who remained out of work. Overall their findings point to the importance of employment over repartnering in lifting lone mothers out of hardship. Indeed their logistic regression analysis to investigate the determinants of an improvement in hardship by 1995, for those in hardship in 1991, found that a move into work of more than 16 hours per week was one of the best predictors of an improvement in hardship by 1995. In terms of repartnering, the important factor was gaining a working partner, but no significant difference was found for those gaining an unemployed partner. Other significant predictors of being better off were age group, having new children, or being pregnant by 1995, the duration of lone parenthood to 1991 and the hardship score in 1991. No direct relationship between improvements in hardship and income were found however, despite trying various specifications of income in the model.

Finlayson et al (2000) in their analysis of the same cohort after the 1998 sweep of interviews carried out a logistic regression analysis using the same hardship index, but this time considered the predictors of moving out of severe hardship (a score of three or more on the hardship scale) by 1998 for those in severe hardship in 1991. Relative to being single with no dependent children, remaining a lone parent was associated with a lower chance of moving out of severe hardship by 1998, but no significant differences were found between these women living without a partner and no dependent children and living with a partner either with or without dependent children. Another important predictor of a move out of hardship was health status, with those reporting good health in 1991 and 1998 being the most likely to leave hardship by 1998. As they discuss, surprisingly none of the work or benefit status change variables were found to improve the fit of the model after already accounting for the health of the respondent and whether or not she had exited from lone parenthood.

Marsh and Vegeris (2004) were not able to investigate changes in hardship in their analysis of the cohort after interview in 2001 due to the fact that many of the questions which formed this index were omitted due to inclusion of questions about the children of this cohort. Analysis of a question relating to financial difficulty across the survey years by partnership and work status suggested that recovery from financial difficulty was no different for those finding a partner compared with those remaining a lone mother, but a movement into work appeared to be associated with far fewer financial difficulties than remaining out of paid work.

Vegeris and Perry (2003) also investigated the influence of repartnering on an index of hardship using the FACS data. The index of hardship used in this study is comprised of nine factors (where each factor contributes one point to the scale) which overall takes into account three aspects of living standards, namely housing conditions, family finances (not including income) and material deprivation. Vegeris and Perry's (2003) findings suggest that repartnering is important in helping lone parents move out of hardship, with the proportion not in hardship doubling between 1999 and 2001 for those who were lone parents in 1999, but were in a couple in 2001. Vegeris and Perry (2003) also used logistic regression analysis to identify the factors associated with a move out of hardship between 1999 and 2001 as well as those associated with hardship becoming worse. After controlling for employment status and moves into work, repartnering was still found to be important in both models, with those finding a new partner being twice

as likely to move out of hardship and 1.7 times less likely to experience a worsening in hardship as those remaining a lone parent.

In terms of studies of poverty dynamics which have investigated the role of repartnering in poverty spell endings, the findings suggest that a rise in a lone parent's own labour earnings is more important than re-partnering in lifting lone parents out of poverty in the short term (Jenkins, 2000; Jenkins et al., 2001). For example, Jenkins et al (2001) find that, at the aggregate level, 38 per cent of spell endings are as a result of an increase in labour earnings of the household head whereas only 14 per cent of spell endings are due to demographic events. However, they do suggest that some repartnering events may have been recorded in the category relating to rises in the spouse's or others' labour earnings if a partner moved in, but the lone mother retained sole ownership or tenancy of the accommodation. In which case, the importance of demographic events might be slightly underestimated.

As well as considering the importance of different trigger events from an aggregate perspective, Jenkins et al (2001) carried out a more extensive analysis which investigated the chance of leaving poverty conditional on experiencing a particular event at the individual level. This analysis was undertaken for the whole population and, following this, separately for different household types including lone parent families. Results from this analysis indicate that demographic events are more important for lone parent families in ending a spell of poverty compared with the population as a whole, with repartnering accounting for 18 per cent of poverty exits for lone parents compared with three per cent for all persons. However, a move into part-time work for lone parents accounted for a larger share of poverty exits (28 per cent) and had a higher prevalence rate than repartnering (15 per cent of the population experienced a rise in number of workers compared with eight per cent moving to a married/cohabiting couple household). Interestingly, though, their analysis suggests that the exit rate from poverty conditional on experiencing the event is only higher for those moving into full-time work compared with repartnering - 66 per cent of those that move into full-time work leave poverty, compared with 63 per cent of those that move into a married couple household. For part-time work, the conditional exit rate is only 53 per cent. The highest conditional rate for leaving poverty is seen for those who repartner and have a rise in number of workers, with 92 per cent of people experiencing this event leaving poverty. However, the prevalence of this event is low, with only five

per cent of lone parents experiencing it and therefore it only accounted for 17 per cent of all poverty exits.

Therefore, the evidence base of the relationship between repartnering and improvements in financial well-being is relatively mixed, although this is no doubt as a result of the variety of different methods which have been used to assess this relationship. Overall what can be discerned from the research so far is that whilst there is some evidence that repartnering alone can improve a lone mother's financial situation, the relationship between repartnering and improvements in financial well-being is further complicated by the effect of their employment status and changes in this over time, as well as the employment status of the new partner. What emerges from much of the literature is the importance of a move into work which often appears to override the effect of repartnering in determining transitions out of poverty.

Employment and repartnering

As reflected above the relationship between repartnering and improvements in financial well-being appears to be influenced by a change in a lone mother's employment status as well as the employment status of the new partner. An independent relationship between repartnering and employment has nevertheless been found. As highlighted in Chapter 2, studies which have investigated the determinants of repartnering have examined the effect of employment status with empirical evidence finding varying effects of this variable on repartnering prospects. Theoretically, being in employment is likely to provide a lone parent with increased opportunities to meet new people and therefore might result in a lone mother repartnering more quickly than a lone mother not out at work. However, from an economic theory perspective, a lone mother who is in employment and thus more economically independent is likely to have less financial need to repartner than a lone mother who is not employed (Becker, 1981).

Other studies however have considered this relationship in the opposite direction – investigating the effect of repartnering on predicting movements into work for lone mothers. One might imagine that a lone mother who repartners might be more likely to move into work since the new partner may be able to share the responsibilities of looking after the children and the home (Paull, 2007). Descriptive statistics from a

number of studies have found that those who had moved into couples were more likely to be in work than those remaining lone parents (Bradshaw and Millar, 1991; Finlayson et al., 2000; McKay, 2002; Kasparova et al., 2003). Furthermore, Kasporova et al (2003) find a positive effect of repartnering on family work status, with a higher proportion of those who repartner having at least one adult in work of more than 16 hours per week in 2001 compared with those who did not repartner.

Several studies have tested this association between repartnering and a move into work[11] in a multivariate framework using a logistic regression analysis (Ford et al., 1998; Iacovou and Berthoud, 2000; Kasparova et al., 2003). Both Ford et al (1998) and Kasparova et al (2003), using the PRILIF cohort and FACS data respectively, find repartnering to be significantly associated with work. Interestingly, Kasparova et al (2003) also find that working lone parents in 1999 that form couples by 2001 have higher odds of leaving work over this time than those who remained as lone parents. As they comment, an element of this is as a result of lone parents forming couples and then having a new baby which results in the lone mother leaving work. Iacovou and Berthoud (2000) distinguish between lone mothers that find a partner with a job and those finding a partner without a job in their study of employment transitions of low-income families extracted from the BHPS. Their results indicated a large and highly significant association between a lone mother finding a partner with a job and subsequently moving into work herself. However, the effect of finding a partner without a job on movements into work for lone mothers could not be reliably determined due to no lone mother in their analysis finding a jobless partner and then going on to find a job herself. Finlayson et al (2000) also looked at factors associated with work entry, but using a transition rate model which analysed the speed of entry into work for out of work lone mothers in 1991. Again in this analysis the presence of a partner had a strong and positive influence on the chance of moving into work.

Despite reasonably clear evidence of an association between repartnering and a move into employment, as described above, logistic regression analyses such as those referred to have not been able to determine the temporal ordering of events. This has led to further analysis attempting to do this; both Ford et al (1998) and Finlayson et al (2000) examined the month-on-month employment and partnership history data collected by the PSI surveys in order to attempt to discover which of these transitions came first –

_____

[11] In all studies a move into work was defined as working at least 16 hours per week.

the job or the partner. However, in both studies it was found that there was an even split between those who found a partner first and those who found a job among those that did both. Further work trying to disentangle the relationship between repartnering and employment transitions and to determine which comes first has been a focus of a recent study investigating partnership transitions and mother's employment using data collected by the BHPS (Paull, 2007). Analysis of closely timed partnership and work transitions (i.e. partnership and work transitions occurring within six or 12 months of each other) revealed that, again, the proportions having a work entry following a union are similar to those having a union following a work entry.

Benefit status and repartnering

Compared with employment and measures of income and material deprivation there has been relatively little analysis investigating the association between repartnering and changes in benefit receipt. Two key benefits that lone parents receive are Income Support and Family Credit (which later became Working Families' Tax Credit (WFTC), replacing Family Credit in 1999). Income Support is a means-tested benefit for those either not working or working less than 16 hours per week, whereas Family Credit (and later WFTC) is means-tested and provides additional support to families with children on a low/moderate income and in work at least 16 hours per week. Receipt of these two benefits is therefore highly dependent upon employment status, with lone parents typically receiving one or other of the two benefits depending on their employment situation. When considering the effect of repartnering on benefit status it is therefore important to remember the relationship found between repartnering and employment status, since benefit receipt is closely linked with employment status itself. As described above, much of the evidence suggests repartnering to be associated with a move into work for lone mothers. Therefore, repartnering for lone mothers who are not working or working less than 16 hours per week and are in receipt of Income Support may result in a move off Income Support if the lone mother also either moves into work or increases her hours above the threshold for eligibility. Furthermore, whether or not the lone mother is working initially, a lone mother who becomes part of a couple family still might lose her entitlement to Income Support if the partner moving in is working more than 16 hours a week (McKay, 2002). Considering the in-work entitlements (Family Credit and Working Families' Tax Credit), again the effect of repartnering

depends on the employment status of the new partner as well as the lone mother. As Marsh et al (2001) describe with reference to Family Credit, repartnering might result in the start of a claim either because the new partner is working more than 15 hours per week (and was previously not able to claim because they did not have dependent children) or if the new partner is not working, because this encourages one of them to go out to work and claim Family Credit. However, repartnering might also result in a move off in-work entitlements. For example if a working lone mother repartners with a working partner they might lose entitlement due to their combined incomes rising above the eligibility threshold, or because it enables the lone mother to stop working (Marsh et al., 2001). In the latter scenario, Marsh et al (2001) point out that although a claim based on the lone mother's earnings might come to an end, a new claim might be made based on the new partner's earnings.

Descriptive analysis of the association between repartnering and movements off Income Support using FACS data have found evidence to suggest that repartnering is associated with a move off Income Support (McKay, 2002; Marsh and Perry, 2003). McKay (2002) finds 70 per cent of lone parents in 1999 who had moved into a partnership by 2000 had also left Income Support by this time, although this is based on less than 50 cases making this transition. Almost double the amount made a move into work, with 76 per cent of these respondents also leaving Income Support. Very few lone mothers were found to make both transitions (17 cases), but all of those that did were found to move off Income Support. Marsh and Perry (2003) find that 80 per cent of lone parents receiving Income Support in 1999 and that had formed a couple by 2001 were to also leave Income Support. Only six per cent of those forming a couple in 2001 made a transition in the other direction – from not receiving Income Support in 1999 to being in receipt in 2001.

In terms of multivariate analysis, Finlayson et al (2000) investigated the dynamics of Income Support using month-by-month records of a lone mother's benefit status collected from the PRILIF cohort which allowed them to construct duration models for entering and leaving this benefit. They find no evidence to suggest that repartnering may encourage a more rapid move off Income Support, however. Particularly important variables found to significantly increase the time a lone mother remained on this benefit included the presence of children with a longstanding illness or disability, the presence of two or more children under the age of five in the household and scores of two or

more on the hardship index. Having young children in the household was also important in predicting movements onto Income Support for lone mothers not claiming this benefit initially.

Bryson and Marsh (1996) investigated what happened to families after they left Family Credit and included an examination of why families left in their analysis. They found that repartnering accounted for 10 per cent of exits from Family Credit. Repartnering was also found to explain routes out of Family Credit in Ford et al's (1998) analysis of the PRILIF cohort where they found that 46 per cent of those who had left Family Credit between 1991 and 1995 had repartnered. Analysis of the third wave of the FACS data by Marsh and Perry (2003) supports these earlier findings with 71 per cent of lone mothers in receipt of Family Credit in 1999 who had repartnered by 2001 found to have also left Family Credit by 2001. In contrast, Marsh et al (2001)'s descriptive analysis of the dynamics of Family Credit receipt found repartnering was more likely to result in the start of a claim than the end of a claim.

Finlayson et al (2000) investigated the dynamics of Family Credit in a multivariate framework as they did for Income Support using the month-by-month records of a lone mother's benefit status as described above. Although repartnering was not found to be important in predicting a move off Family Credit, it was found to be associated with a move onto Family Credit which, as Finlayson et al (2000) comment, is when the claim would probably be based on the new partner's job.

Of course, the relationship between repartnering and benefit receipt may be further complicated by other changes which are likely to be associated with repartnering, such as the birth of a new baby (see below for evidence of an association between new children and repartnering). Marsh et al (2001) examine the effect of new births on claims for Family Credit finding that the birth of a new baby was more commonly associated with the start of a claim than the end of one. In their analysis, 21 per cent of those who had given birth since January 1996 had started a claim for Family Credit within three months of the birth. Only six per cent of these ended the claim within three months either side of the birth. As they describe the reasons for this move onto family credit are likely to be a result of the new baby causing an increase in the Family Credit threshold enabling a new claim. Furthermore, moves off Family Credit might be either as a result of the worker in receipt of Family Credit ceasing work in order to concentrate on looking after the new baby and hence ending their claim for in-work benefits, or

taking maternity leave around the time of the claim renewal (Marsh et al., 2001). In the latter case the claim would not be reassessed until the mother returned to work and would therefore result in a break in the receipt of Family Credit during maternity leave.

In summary, despite descriptive statistics suggesting an association of repartnering with a move off Income Support and Family Credit, this finding is not supported by multivariate analyses. In fact, it appears that there is more support for an association between repartnering and a move onto Family Credit/WFTC. As highlighted by Finlayson et al (2000), such findings provide little support for the hypothesis that repartnering might lead to reduced dependence on state-benefits. Furthermore, there is an indication that other changes, such as the birth of a new baby, which are likely to be associated with repartnering may result in the start of a claim for benefits such as Family Credit/WFTC.

Housing and repartnering

As one might expect, repartnering has been found to be associated with a household move, with Ford et al (1998) and Vegeris and Perry (2003) finding higher proportions of those who repartnered also moving house compared with those who did not repartner. The findings from analysis of the PRILIF cohort of lone mothers also point to a positive association between repartnering and moving into owner occupied housing. Considering it is known that relationship breakdown negatively impacts housing career, particularly for women and lone parent families (Sullivan, 1986; Spain, 1990; McCarthy and Simpson, 1991; Poortman, 2000; Feijten, 2005) cited by Feijten and van Ham (2007), this finding of an association between repartnering and a move into owner occupation is encouraging. Ford et al (1998) find that a quarter of those who move into a new dwelling with a partner (which is in most cases a new joint home) move into owner occupation as a result. Marsh and Vegeris (2004) find that half of those lone mothers who began as social tenants in 1991 and who later repartner, move into owner occupation. Indeed this association is also supported by findings from FACS indicating higher proportions of lone parents who moved into a couple family between 1999 and 2001 were also found to move into owner occupation over this time compared with continuing lone parents and those in couples in 1999 (Vegeris and Perry, 2003). Given the findings discussed above concerning the relationship between repartnering, financial

well-being and employment status then this finding is perhaps not surprising, since it is likely more of the ex-lone mothers would be able to afford this type of housing. Indeed, Vegeris and Perry (2003) find that the highest increase in owner occupation is observed for those lone parents who repartnered and moved into work.

Despite these findings, a significant proportion of lone mothers will not experience such a move upon repartnering. Analyses of the PRILIF cohort suggest that new partners are more likely to move into the home of the lone mother, than for the lone mother to move into the new partner's accommodation. This is perhaps what one would expect given that a lone mother might be reluctant to move herself and a child whereas the new partner is unlikely to be bringing any dependent children with him, as will be discussed below. Both Ford et al (1998) and Finlayson et al (2000) in their analyses of the PRILIF cohort of lone mothers found around half of the lone parents that repartnered in their samples had the new partner move into their home, whereas only a tenth moved into the new partners accommodation. The remainder were found to move into a new joint home.

Vegeris and Perry (2003) also investigated housing conditions in relation to the changing relationship statuses of families in their study. They find no change in the proportions of those with at least three problems with their housing or with overcrowding across any of the relationship subgroups over the surveys years. However, the proportion of families who were not able to afford to keep their home warm in winter did fall for all relationship status groups, particularly those who repartnered. Indeed, this was especially true of those that had repartnered and moved from not working in 1999 to working by 2000.

In summary, previous findings suggest that repartnering is associated with a household move, with higher proportions of those repartnering experiencing such a move compared with those remaining lone mothers. Nevertheless, many are likely to have their partners move in with them rather than to move themselves, and rarely do lone mothers move into the new partner's home. There appears to be some indication that a household move might involve a step onto the 'property ladder' with an association between repartnering and a move into owner occupation found from descriptive analysis of both PRILIF and FACS data. Furthermore, repartnering may also provide a lone mother with the extra resources needed to improve quality of life within the home, such

as being able to afford adequate heating. However, as was found in relation to improving financial circumstances of lone mothers, a move into employment still plays a part alongside repartnering. Moreover, these findings are all based on descriptive analysis, with no study conducting a multivariate analysis to investigate the association of repartnering with a household move after controlling for additional factors.

New children and repartnering

Analysis of the PRILIF lone parent cohort over the 1990s, as well as data collected by FACS, has revealed an association between repartnering and new children entering the household. Furthermore, these new children are, more often than not, new joint babies, rather than children from the new partner's previous relationship (Ford et al., 1998; Marsh and Rowlingson, 2002). Ford et al (1998) found that only five per cent of the new partners present in the household in 1995 brought their own children with them. With respect to new joint children, the PRILIF data provide a number of statistics relating to the association between repartnering and having a new baby after analyses of different years of the survey data: Ford et al (1995) find that 30 per cent of those who repartnered were also expecting a new baby; Finlayson et al (2000) find that a quarter of the sample had had new babies by 1998, with proportionally more of these children belonging to new couples than to those remaining lone parents; Marsh and Vegeris (2004) find that nearly half of those who had had new babies since 1991 were also living with a partner.

Analyses of the FACS data produce similar statistics: Marsh and Rowlingson (2002) find that a quarter of lone mothers who have more children in the household in 2000 compared with 1999 have also become part of a couple between these two survey years. Considering this statistic in terms of the proportion of each group which have new children in the household it is found that 14 per cent of those who were found to repartner also gained another dependent child, compared with only four per cent of those continuing as lone parents. Marsh and Perry (2003) in their analysis of the same survey data but from the years 1999 and 2001 find that 21 per cent of those lone mothers that form a partnership between the two survey years have a new dependent child in the household compared with only seven per cent of those who remained lone mothers. Distinguishing between whether the new child is a new baby or an older child

returning to the household reveals that lone mothers who repartner were more than twice as likely to have a new baby in the household compared with those that did not repartner. In addition these repartnered lone mothers were also more likely to have older children move back into the family as well. As they describe, this is likely to be as a result of lone mothers returning to a previous partner and 're-forming' the family.

Only one study (Marsh and Vegeris, 2004) has considered the relationship between repartnering and new children in a multivariate framework however. Confirming results from the descriptive analysis described above, a logistic regression analysis to investigate the factors associated with a 1991 lone mother having a new baby between 1991 and 2001 reveals a statistically significant effect of having found a new partner (or reconciled with a previous partner) over this time. Not surprisingly a lone mother's age and the age of her children were also important predictors of having a new baby. Those with children under age five and themselves under age 40 in 1991 were significantly more likely to have a new baby compared with those who were older and had older children. Their analysis also suggests a negative relationship between the birth of a new baby and a move into employment, though they point out that this is only temporary in most cases. Indeed, Kasparova et al (2003)'s results using FACS data provide further support for this finding, with 62 per cent of those who repartnered and had a new baby remaining out of work compared with 32 per cent who repartnered but did not have a new child.

Health and repartnering

Very little research has examined the association between health and repartnering for lone mothers. A wealth of evidence suggests that lone mothers in the U.K. have poorer health than mothers in couple families (Popay and Jones, 1990; Benzeval, 1998; Baker and North, 1999; Shouls et al., 1999; Whitehead, Burström and Diderichsen, 2000; Lahelma et al., 2002). A valid question to ask therefore is whether or not repartnering may result in improved health for lone mothers?

Considering a direct effect of repartnering on health, the presence of a new partner would certainly provide an ex-lone mother with more social and emotional support, which may result in improved health (Benzeval, 1998). Indirect effects, such as if

repartnering leads to an improvement in financial circumstances, may also result in improvements in mental health, given the positive association found between financial hardship and psychological distress for lone mothers (see e.g. Baker and North, 1999; Hope et al., 1999a). However, as discussed above, previous research indicates that the relationship between repartnering and an improvement in financial circumstances is often related to changes in the employment status of a lone mother upon repartnering. If repartnering is accompanied by a move into the labour market as well, it is possible that, at least initially, a lone mother might experience difficulties combining the roles of motherhood and paid work. Under this theory (referred to as the 'multiple burden hypothesis'), one might expect health to deteriorate. However, recent research which has considered health in relation to the multiple roles that women often have to combine finds little evidence for the multiple burden hypothesis (Lahelma et al., 2002). Instead, support is found for the contrasting 'multiple attachment hypothesis', which suggests that multiple roles lead to positive health outcomes since they provide women with greater attachment to the community (Lahelma et al., 2002).

In terms of empirical evidence of the association between repartnering and health for lone mothers, data from the PRLIF cohort of lone mothers suggests that repartnering might lead to improvements in health. Finlayson et al (2000) find a lower incidence of depression and anxiety amongst those who had found a partner. In addition to this, a third of lone parents reported a long standing illness in 1996 and 1998 compared with only a quarter of those who were now couples. Marsh and Vegeris (2004) also find some evidence of an association between repartnering and improvements in health, finding the growth of long-standing health problems to be stronger for those who did not repartner. However, the effect of repartnering on health outcomes for lone mothers in the U.K. is yet to be tested in a multivariate framework.

Studies conducted in other countries (mainly the U.S.) which have considered marital transitions in relation to health outcomes and have included controls for demographic and socio-economic variables find a positive effect of repartnering on health (Mastekaasa, 1994; Williams and Umberson, 2004). However, in the study by Williams and Umberson (2004) the positive effect of remarriage is smaller for women than men and stronger for younger compared to older adults. Although these studies suggest that entering into a new partnership might lead to improvements in health for lone mothers, the results cannot be directly applied to lone mothers.

A recent study conducted in the U.S. has made an attempt to address the gap in the knowledge regarding the effects of entry into a union on the health of lone mothers and provides some interesting results (Williams, Sassler and Nicholson, 2008). Distinguishing between the effect of unions which endured and those which ended over the study period their findings indicate that entering an enduring marriage has a positive effect on the mental health of lone mothers but no effect on their self-assessed health. Entry and subsequent exit from marriage also had no significant effect on the self-assessed health of single mothers, but was associated with a significant ($p<.10$) increase in psychological distress relative to remaining unpartnered. In terms of cohabiting unions, their findings indicate that entry into an enduring cohabiting union has little effect on mental or physical health for lone mothers, but entering and exiting a cohabiting union is associated with an increase in psychological distress.

The study by Williams et al (2008) therefore challenges the view that repartnering necessarily leads to improved health outcomes and highlights that more research is clearly needed in this area.

3.6 Hypotheses relating to the explanatory variables and transitions in the three domains

After consideration of the findings from previous studies presented above, it is possible to put forward hypotheses relating to the expected association of the independent variables with the dependent variables proposed in the three domains:

Economic domain:

For the model examining the association of explanatory variables with an improvement in financial wellbeing I expect to find a positive association between repartnering and an improvement in financial situation. After controlling for any employment change over the same period I at least expect attenuation of this association, and possibly for employment change to explain all the variation previously accounted for by repartnering.

Demographic domain:

In terms of an increase in number of children, I hypothesise repartnering to be strongly positively associated with an increase in number of dependent children within the household. I also expect an association between an employment change and an increase in number of children and a potential interaction of the employment change variable with repartnering.

For the model examining a household move (of any type) I expect repartnering to be strongly positive associated with a household move. In addition I expect an association between a household move and a change in number of children, with this perhaps interacting with the repartnering variable. For a move into owner occupation I again expect repartnering to be statistically significant. In addition I expect an employment change to be important for this type of move and for this to interact with repartnering.

Health domain:

With respect to investigating an association between the explanatory variables and an improvement in mental health I hypothesise repartnering to have a positive association with an improvement in mental health. After controlling for a change in financial situation I would expect this effect to be weakened however. I would also expect an association between a change in employment status and an improvement in mental health and a possible interaction between employment status and repartnering. Finally, regarding deterioration in mental health, I hypothesise repartnering to have no significant effect. However, I expect a change in financial situation to be highly statistically significant.

Chapter 4

Data

The focus of this chapter is on the data which is to be used to examine the repartnering patterns of lone mothers and the implications of repartnering for a lone mother's well-being. The first sections of this chapter introduce the data and describe the sampling design. A detailed description of the selection of the samples for analysis follows and includes the identification of lone mothers, the coding of the partnership histories and the construction of the final datasets for analysis. The variables selected for analysis and their associated coding frames are presented. The final section explores the quality of the data under analysis. After an overview of the type of errors present in all survey data, an investigation of the wave-non response and attrition affecting the samples is conducted. The level of missing data across the variables is explored and a rationale for the chosen method for dealing with this problem is provided. Finally, the issue of recall bias is discussed.

4.1 Introduction to the BHPS

The data used in this analysis is taken from data collected by the British Household Panel Survey (BHPS) between the years 1991 to 2004 (waves 1-14). The BHPS is an annual survey carried out by the ESRC UK Longitudinal Studies Centre (ULSC) located within the Institute for Social and Economic Research (ISER). The survey interviews every adult member of a nationally representative sample of around 5000 households amounting to around 10,000 individual interviews. In order to gain longitudinal information on social and economic changes at the individual level in Britain the survey takes on a panel design whereby the same respondents are re-

interviewed in each subsequent year after the survey began in 1991. Individuals who leave an enumerated household are followed into their new homes and all adult members of their new household are also interviewed allowing the survey to provide a representative picture of the British population and how it changes over the 1990s (Taylor et al., 2006)

The rationale behind using the BHPS for this analysis was in principal due to its longitudinal nature and the number of waves of data available for longitudinal analysis. Since a key aim of this study is to investigate the repartnering patterns of lone mothers using a variety of time-varying as well as time-invariant covariates it is necessary to be able to observe these lone mothers from the point at which they enter lone motherhood until the time at which they either repartner, their children grow up (and hence they are no longer defined as being a lone mother), or they leave the study due to non-contact. Therefore a particular advantage of the BHPS over other longitudinal studies, such as the Families and Children Study (FACS), was the large number of waves of data that the BHPS has available for analysis (fourteen waves compared with only seven in the FACS) allowing scope for capturing women at the point at which they became a lone mother and providing enough follow up waves after this point to allow their repartnering patterns to be observed and analysed. Furthermore, it was possible to use the marital and cohabitation histories collected in wave two, supplemented with information relating to marital status across subsequent waves of the panel, to create partnership histories for the lone mothers which were required in the models.

4.2 Sampling design of the BHPS

4.2.1 Selecting the initial sample at wave one

Households were initially selected for inclusion at wave one of the BHPS using a two-stage probability design and systematic sampling. As Taylor et al (2006) describe, this design was chosen as a result of the need to balance efficiency and cost and is approximately an equal probability selection method (EPSEM) design. The small users Postcode Address File (PAF) for Great Britain was used as the sampling frame, which, as described by Wilson and Elliot (1987), is a comprehensive list of addresses which receive less than 25 mail items per day and is hierarchically organised on a geographic

basis. The PAF is one of only two sampling frames (the other is the Electoral register) considered as 'serious contenders' for sampling residential addresses in Great Britain (Lynn and Taylor, 1995). In fact, as Lynn and Taylor (1995) comment, the PAF is considered superior to the Electoral register for sampling households.

Overall, 250 postcode sectors were selected from a list of all postcode sectors south of the Caledonian Canal, which was stratified by region and three socio-demographic variables. A probability proportional to size method was used for selection of the sectors where size was determined by the number of delivery points in the sector for England and Wales and the sum of the Multiple Occupancy Indicators for all the delivery points in the sector for Scotland (Taylor et al., 2006). These postcode sectors constituted the Primary Sampling Units (PSUs) in the first stage of selection.

In the second stage of selection a systematic sampling procedure was used to select an average of 33 delivery points (equivalent to addresses) from each of the selected sectors. From each of the selected residential addresses (non-residential addresses and institutions were excluded from the analysis) households were then selected by the interviewers in the field. In total 8,167 addresses were selected using the above method and face to face interviews were attempted with all private households located at these addresses, up to a maximum of three households. In the event of an address containing more than three households (only 2.7% of households), a Kish Grid procedure was employed to randomly select households for inclusion in the sample (Lynn, 2006). The standard Office of Population Census and Surveys (OPCS) definition of a household was used to select households for inclusion: one person living alone or a group of people who either share living accommodation OR share one meal a day and who have the address as their only or main residence (Taylor et al., 2006). At each selected household interviews were sought with every resident adult household member (any person aged 16 years and over on 1st December 1991) and attempts were made to obtain proxy interviews for all eligible members of that household that were either absent or too ill to respond to the survey. At wave one a total of 13,840 persons were enumerated and constituted the Original Sample Members (OSMs). Of these, 10,751 were eligible for interview under the conditions described above and a total of 10,264 (including proxy respondents) interviews were achieved (Lynn, 2006).

4.2.2 Sampling and follow up procedures after wave one

In subsequent waves interviews are sought with all adult members of households that contain at least one member of a household enumerated at wave one (e.g. all households containing at least one OSM). In addition, where possible, attempts have been made to achieve interviews with any individuals enumerated, but not interviewed at wave one, due to refusal or because they were unable to take part for any reason (i.e. illness). Furthermore, an attempt was made at wave two to contact households where no interviews were achieved with any of its household members at wave one after verification that a household move had not taken place between the two survey waves (Taylor et al., 2006). However, in many cases these households were non-respondents at wave two and hence no further attempts were made to contact them again at subsequent waves (Lynn, 2006).

Thus the rules that determine who is eligible for interviewing in the subsequent waves are described by Johnson (2002) as follows: firstly, all individuals present in a household sampled in wave one (the OSMs) are followed even if they leave to join or form new households. Secondly, persons moving into households with an OSM after wave one, or an OSM forming a household with other persons become Temporary Sample Members (TSM) and are followed only while they remain in the household with the OSM. Finally, children born to OSMs automatically become OSMs themselves. Additionally any TSM who is the parent of an OSM child becomes a Permanent Sample Member (PSM) and is followed even when they do not continue to reside with an OSM. It should also be noted that although in the following waves, as in wave one, the criterion for sampling includes only residential addresses south of the Caledonian canal, OSMs are followed into institutions (except prison) and into areas north of the Caledonian canal (Taylor et al., 2006). Furthermore, OSMs who move out of England, Scotland or Wales remain in the sample but are not interviewed until the time comes that they return to England, Scotland or Wales (Lyon, Barnes and Sweiry, 2006).

4.2.3 Additions and changes to the BHPS since 1991

As described by Taylor et al (2006), there have been several changes and additions to the BHPS since the survey began in 1991, which are to be summarised briefly below. The first change came in wave four (1994) with the addition of a young person's survey

called the British Youth Panel (BYP). This survey interviews all children in sample households aged between 11 and 15 years.

A further addition to the panel came in 1997 when the BHPS began to provide data for the United Kingdom European Community Household Panel (ECHP). A sub-sample comprising original UKECHP respondents was incorporated including those households in Northern Ireland that were still responding and a 'low income' sample from the Great Britain panel. In 2001 the ECHP came to an end however and with no alternative funding available for the ECHP sub-sample, it was not continued beyond wave eleven.

At wave nine a further two samples were added –one from Scotland and one from Wales as a result of the need to increase the original small samples from these countries to allow independent analysis and cross country comparisons. With wave nine also came a change in the mode of data collection, with a move to computer assisted personal interviewing (CAPI) in the hope to improve data quality as well as to speed up the turnaround and release of data and to reduce fieldwork costs.

The latest addition to the BHPS, which came in 2001, is a sample in Northern Ireland – The Northern Ireland Household Panel Survey (NIHPS) meaning that the panel survey is now representative of the whole of the UK and not just Great Britain. The addition of this sample also allows for comparisons to be drawn between Northern Ireland and the UK.

4.2.4 Survey instruments

A number of survey instruments are used to collect data from respondents in the BHPS including, amongst others, a Household Composition Form, a Household Questionnaire, an Individual Schedule and a Self Completion Questionnaire. After the initial collection of a complete listing of all household members, along with some basic demographic information and details of relationships between household members using the Household Composition Form, a Household Questionnaire is administered to the household reference person collecting data on the accommodation and tenure and some household measures of composition. An Individual Questionnaire is then administered with every adult member (aged 16 and over) of the household which collects information on a number of topics including individual demographics, health and

caring, current employment and earnings, employment changes over the past year, values and opinions and, at wave two specifically, lifetime childbirth, marital and relationship history. Finally a Self Completion Questionnaire is used to collect information on questions which are considered sensitive and hence require more privacy as well as some subjective or attitudinal questions which are considered to be vulnerable to the influence of other people's presence during completion (Taylor et al., 2006). Contained within this questionnaire is a reduced version of the General Health Questionnaire (GHQ), described by Taylor et al (2006), as an instrument originally developed to screen for psychiatric illness, but often used as an indicator of subjective well-being.

In the circumstance that a member of the household is absent at the time of the interview, or is too old or infirm to complete an interview themselves, a Proxy Schedule is completed with another household member, preferably the spouse or adult child. This takes the form of a considerably shortened version of the individual questionnaire and includes some demographic, health and employment details and a summary income measure (Taylor et al., 2006). If all efforts to achieve a face-to-face interview fail then a Telephone Questionnaire is used which is based on a reduced version of the proxy schedule.

4.2.5 Features of the survey which promote longitudinal analysis

As previously described above, the panel nature of the BHPS is particularly advantageous for the longitudinal analysis required by this study, as is the availability of a large number of waves in order to identify those moving into a spell of lone motherhood and to obtain sufficient waves of follow-up observations to observe their repartnering patterns. Of principal importance is the identification of factors that are related to a move (back) into a partnership, particularly those which vary over the course of time a woman remains at risk of leaving lone parenthood. Hence it is necessary to have a wide range of questions asked repeatedly in each subsequent wave as well as those only required to be asked once. In the BHPS many of the questions are repeated in subsequent waves and those asked in all waves are known as the "Core questions". These questions include any relating to the status of the individual and the household, such as employment status, marital status and housing tenure for example, which are considered likely to change from year to year and hence must be asked at

each wave. In addition to this are questions asked in alternating waves, or on a cyclical basis, known as "Rotating Core" questions which include any topics for which large changes over each wave are not expected and hence they are not needed to be asked in every year. Finally, those only asked once in the survey are known as "Non-core" or "Variable Components" which include questions which establish 'initial conditions', such as year of birth, as well as in-depth questions on a particular topic chosen for that wave, such as marital and fertility histories and retrospective work histories (Taylor et al., 2006). Variables used in this analysis are taken from each of these components and will be described in more detail below.

4.3 Initial selection of samples for this analysis

The BHPS data is divided into a number of files referred to as record types which contain data collected at each wave for different subsets of questions and respondents and in general correspond to the different questionnaire instruments or major distinguishable elements within those instruments (Taylor et al., 2006). The main record types used in the collection of samples for this analysis included wINDRESP, the record containing the individual data from full and proxy questionnaires at each wave and wHHRESP which contains data for all respondent households collected from the Household Questionnaire and household level information from the Household Composition Form.

4.3.1 Selecting out those who became a lone mother over the life of the panel

To look at the repartnering patterns of lone mothers it was necessary to firstly select out women that actually became lone mothers throughout the life of the panel in order to then follow them up through the waves and analyse their repartnering trajectories. This process began by selecting variables from individual and household files of successive pairs of waves of the BHPS (e.g. 1991 and 1992) and merging these together with the use of the cross-wave person identifier. Successive waves up to wave thirteen were merged together in order to create twelve samples each containing a sample of respondents and their recorded responses at these two successive points in time. Waves thirteen and fourteen were not merged together due to that fact that any women entering lone motherhood in 2004 would not have any years at risk of repartnering available for

analysis. Those already lone mothers at the beginning of the survey in 1991 were also not selected since it would not be possible to include time-varying factors for this group of lone mothers. From the samples of merged successive waves, all women aged under 16 or over 60 years in the second of the two waves were deleted from the sample due to that fact that only women in their main child-bearing or rearing years are likely to have become lone mothers under the definition chosen for this analysis. It was then necessary to create a variable measuring whether or not a woman became a lone mother between the two survey years, as well as to distinguish between those that became a lone mother due to the breakdown of a cohabiting union, compared with through the separation or divorce of a marriage or through having a birth whilst single and never-married (see Figure 4.1 below for an example of this selection procedure). Table 4.1 below shows the initial sample sizes achieved in each of the pairs of merged waves for each type of lone mother.

Figure 4.1 Selecting out those that became a lone mother between waves 1 and 2 (1991-1992)
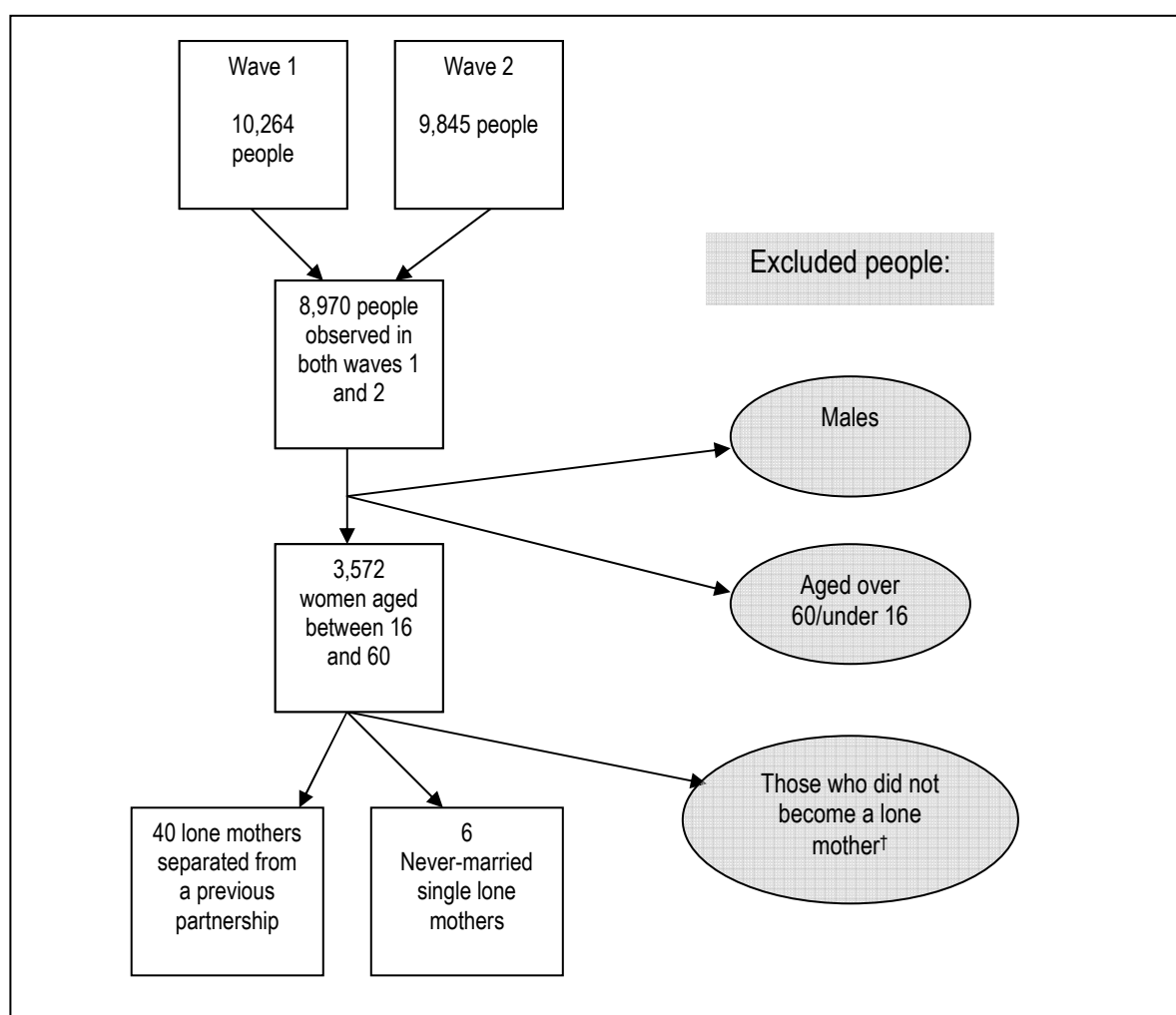
†Those who did not become a lone mother include some women that were already a lone mother in each wave.

Table 4.1 Initial achieved sample sizes by year of entry into lone motherhood[12]

Year of entry to lone motherhood	Sample size	
	Lone mothers separated from a previous partnership	Single never-married lone mothers
1991-1992	40	6
1992-1993	38	13
1993-1994	30	7
1994-1995	29	11
1995-1996	31	3
1996-1997	38	10
1997-1998	40	2
1998-1999	35	10
1999-2000	60	5
2000-2001	37	10
2001-2002	59	12
2002-2003	54	10
Total sample size	491	99

The identification of lone mothers was carried out by comparing the de facto marital status of women and number of children in the household over the two consecutive waves. For example a woman who moved from cohabiting (with dependent children in the household) in one year to never-married (with dependent children in the household) in the next is assumed to have become a (previously cohabiting) lone mother at some point between the two survey waves. Unfortunately although from wave three onwards the BHPS includes variables which measure the month and year of any marital status change, these variables only relate to changes in legal marital status. It is therefore not possible to obtain any information on the exact month and year that a cohabitation begins or ends for a particular person. Since a significant proportion of the lone mothers identified at this stage were lone mothers whose last partnership was a cohabitation and due to the fact that research has found a high proportion of those who repartner choose to enter into a cohabiting partnership rather than a marriage, as was highlighted in Chapter 2, transitions into lone motherhood and out again through repartnering in this analysis are only to be measured in terms of years rather than months.

Importantly it must be highlighted here that this procedure of identifying transitions into lone motherhood requires an assumption that only one event (i.e. marital status change, or the birth of a child) has occurred between the two successive waves. Under this rule,

---

[12] Sample sizes achieved before any deletions due to item non-response and attrition carried out.

a woman that went from cohabiting in one wave to separated or divorced in the next is assumed to have been married at some point in the past, rather than having got married and then subsequently separated or divorced in the time between the two survey waves. Considering the length of time between the survey waves is short –only one year and due to the process of divorce being time consuming, this is deemed a reasonable assumption and is one used in other analyses (see Peters, 1988). Furthermore, even if this was the case for some women, one could argue that since the marriage was so short then the cohabitation was the more relevant partnership and the characteristics of the woman are likely to be more similar to other previously cohabiting women than other previously married women.

Therefore, using the respondent's de-facto marital status those counted as becoming a divorced, separated or widowed lone mother were any women that went from married at the first time point to divorced, separated, or widowed respectively and had at least one dependent child at the second time point. Those counted as becoming a lone mother through the breakdown of a cohabitation included any women that went from cohabiting to separated, divorced, widowed or never-married and had at least one dependent child at the second point in time. Finally, those becoming a lone mother whilst single and never-married included those women that stayed never-married between the two time points, but who gave birth to a child between the first and second time point. A dependent child in this analysis was defined as any child aged under 16 living in the household. Although this definition is slightly different to that defined by the Department of Social Security, which includes all children aged under 16 as well as those aged 16 to under 19 in full-time education, it is considered that this will not substantially affect the analysis and would only further complicate the identification of those lone mothers leaving lone motherhood due to their children growing up.

In addition, and quite importantly, the response to the question which checks whether the respondent is actually living with their spouse or partner was used to determine whether, in spite of a change in marital status observed between the two successive waves, the spouse or partner was actually living in the household initially in the first of the two waves. This is important due to that fact that there is a chance that although a change in marital status has been observed, the relationship might have actually broken down before this change in marital status occurred. Indeed, taking a closer look at some of these women who would be coded as lone mothers due to a change in their marital

status, but whose partners were found to not actually be living in the household in the year prior to this change, it was found that in some cases the spouse or partner had not been living with the respondent for several years before this change in the woman's marital status actually occurred. Therefore only women whose spouse or partner were living in the household in the year prior to an observed change in marital status were coded as becoming a lone mother through the breakdown of a partnership.

Furthermore, considering the condition described above concerning whether or not the spouse was present in the household in the year before a change in marital status occurred, it was decided that any woman that stayed married between these time points, but whose husband was no longer living in the household at the second time point were also included as becoming separated lone mothers, or even divorced lone mothers as the legal marital status of some cases suggested. This was due to that fact that it was considered that the point at which the husband moved out was more important in defining a move into the lone parenthood state, than simply a change in marital status. Although financially these lone mothers may be more similar to other lone mothers in the study at the point at which the change in marital status occurs, in terms of the loss of additional support in the household and potentially extra childcare provision there are likely to be more similarities at the time at which the husband actually leaves the household. It is also this change which is likely to determine the most significant changes in the household that occur when a woman becomes a lone mother, such as a change in employment status. Moreover, for all but one of the fourteen such women that were included in the final sample (one left after just two years without any change in marital status), the change in marital status was to occur in the subsequent wave in any case.

As well as this, two women appeared to have moved from married in the first time point to never-married in the second time point and, after further examination, these were coded as lone mothers separated from a marriage. Finally, it should also be noted that several women (eleven in the final sample) went from either cohabiting or married with no children to living without a spouse or partner but now with one dependent child. For those that were in a cohabiting relationship initially it might be that the cohabitation ended before the child was born and therefore technically these lone mothers could be considered as single never-married lone mothers. For two of these cases it was possible to obtain information on the date of separation of the mother and partner due to the fact

that partnership history data was collected in this year. This data was compared with the month of birth of the child and it was found that these births did actually take place inside of the cohabitation. However, for the majority of previously married or previously cohabiting lone mothers this detailed information was not available and therefore it was decided that since these lone mothers had recently been in a partnership they were likely to have most similar characteristics to those that became a lone mother through the breakdown of a partnership and hence were coded in this manner.

Women that did not become any type of lone mother over this period were then deleted from these samples. A small number of these deleted women (twelve overall) included those who had been married in the past, but who remained un-partnered over the two waves and either had grown up non-dependent children or were childless, but gave birth to a child between the two waves. Therefore, although these women did effectively become lone mothers, they are a distinct group of generally older women who are likely to have different characteristics to both the other two groups of lone mothers being analysed in this study. Due to the small sample size of this group they could not be analysed separately and it would also be difficult to account for them in any analyses so they were necessarily deleted from the sample.

In addition, a number of women (50 overall) were found to re-enter lone motherhood in later waves after being selected already in a prior wave and these were also deleted from the samples in which they re-appeared. Although it is possible to carry out event history analysis of repeated events, such as moving into lone parenthood and out and back in again and hence allowing women to have multiple spells of lone parenthood, analysis of such type of events is beyond the scope of this study. Therefore only the first observed spell of lone parenthood after 1991 is to be examined in relation to repartnering. It should be noted that this is not necessarily the first ever spell of lone motherhood.

When selecting the samples, any women that were not able to be contacted at all in either one of the time points were necessarily excluded from the analyses since they provided no information on transitions over this time period. No distinctions were made between the sample status of the respondent, i.e. whether they were an OSM or

not.[13] Furthermore, members of the additional sub-samples collected after wave seven of the panel were also included in the samples. Variables to identify the sample origin of each lone mother were collected in order to allow identification of these different subgroups in the subsequent analyses.

The final step in this part of the process of collecting together all those that became a lone mother was to divide each of the 12 samples into two separate samples (making a total of 24 samples), one containing those that became lone mothers through the breakdown of a marital or cohabitational union and the other containing those that became a lone mother through having a birth whilst single and never-married. As previously suggested in Chapter 2, the repartnering patterns of those becoming a lone mother through the breakdown of a previous partnership are likely to be different to that of those becoming a lone mother through giving birth whilst single and never-married, particularly since a large proportion of the latter group are likely to be partnering for the first time rather than re-partnering. Furthermore, previous analysis has demonstrated that the factors associated with becoming different types of lone mothers in the first place are quite distinct. Therefore, in order to allow for the possibility of controlling for different variables it seems sensible to carry out separate analysis of these two groups of lone mothers and allow differences in their repartnering patterns to be identified. For those entering lone motherhood through the breakdown of a partnership a control will be added to identify the type of previous partnership (i.e. a marital or cohabiting union) which broke down.

4.3.2 Coding of partnership histories for those becoming a lone mother through the breakdown of a partnership

Dividing the samples

In the BHPS, information on respondent's lifetime partnership histories was collected in wave two (1992) for all respondents and then again in waves eleven (2001) and twelve (2002) for those entering via the Scotland and Wales extension samples and the Northern Ireland extension sample respectively. These data are contained in the record files wCOHABIT and wMARRIAG. In addition, in wave eight a small number of

---

[13] It is acknowledged that the inclusion of Temporary Sample Members (TSMs) in the sample could have implications for the subsequent analyses given that their exit from the sample might be related to them having the event (i.e. repartnering). In fact, less than 3% of the final sample (15 cases) were TSMs and therefore this is unlikely to represent a problem for this study.

variables were included in the individual questionnaire (HINDRESP) to collect 'catch up' information on start and end dates for previous cohabitations, the number of marriages and the date of first marriage for any respondents that were not interviewed in waves one or two or were a new entrant over 16 years of age and had lived with someone as a couple at some point or ever married. A number of these variables, including the start and end dates of a respondent's first cohabitation, the date if a partnership of this type had occurred, the number of marriages and dates of the first of these if applicable were also collected in subsequent waves for those not interviewed before. Due to this information being collected at these different time points for the different groups of lone mothers, all those lone mothers who were part of the ECHP or Wales, Scotland or Northern Ireland extensions samples were selected out of each of the original twelve samples to create another six samples in order for their partnership histories to be created separately.

The process of obtaining data to observe their partnership histories

For the first of the twelve samples, which included the original Essex sample of women that entered lone motherhood in the second wave of the BHPS in 1992, the coding of their most recent previous partnership and total number of previous partnerships was a straightforward process due to the collection of the retrospective marital and cohabitational histories at this wave. This information was simply merged into the sample with the use of the personal identification variable with the coding of the start and end dates of their most recent partnership and the number of total partnerships carried out as described below. The same process was carried out for those in the extra sub-samples that entered lone motherhood in 2001 when the retrospective marital and cohabitational histories were collected again.

However, for subsequent samples including all lone mothers entering lone motherhood at some point after 1992 and those in the extra sub-samples entering lone motherhood before 1997 or after 2001 it was necessary to look back at their responses to certain variables from each wave prior to them entering lone motherhood. These variables included those relating to their marital status, whether their spouse was living in the household and the spouse's personal identification number at each time point. The beginning of the previous partnership was then identified in the same way that the lone mothers were identified initially, by comparing two waves and observing a marital status change between these two time points. Although in general it was assumed, and

71

in fact appeared to be the case, that women only made one marital status transition in each event period, it is possible that a woman may be recorded as being married in two successive waves, but in fact an intervening divorce and subsequent re-marriage has occurred (Peters, 1988). In this circumstance the spousal identification numbers would be different for each marriage. Therefore close attention was paid to the personal identification number of the spouse as well as whether the spouse was living in the household at each time period in order to detect such transitions. In some cases where the previous partnership was relatively long in duration it was necessary to use the retrospective partnership histories in addition to the above procedure to determine the beginning of the previous partnership. For all these samples the partnership history data was used as well, where present, in order to identify number of previous partnerships. Finally, for a number of previously partnered women it was possible to obtain information on partnership history using the 'catch up' marital and cohabitation history collected in wave eight and the responses to the small number of partnership history variables collected in subsequent waves as described above.

Defining previous partnership duration

In each case, no matter whether it was necessary to use the retrospective history data or just to examine the responses from previous waves to determine the length and number of previous partnerships, the beginning of a previous partnership was defined as the point at which the couple either began a cohabitation (even for those who subsequently married) or at the time of marriage for those who did not cohabit pre-maritally. Due to the fact that many of the most recent previous partnerships of these lone mothers began after 1992 and only detailed information on the exact month of a change in legal marital status[14] is collected annually, it was not possible to determine the month in which the most recent previous partnership began for the majority of the women becoming lone mothers through the breakdown of a cohabiting union. As previously highlighted above it was also impossible to determine the exact month in which the partnership ended resulting in them becoming a lone mother. The duration of the most recent previous union was therefore determined in terms of years by subtracting the year in which it began from the year in which it ended (with the year it began being taken either from the lifetime history data or referring to the survey year in which they were first observed to be in that partnership). Since the variable measuring the duration of the prior union

---

[14] A change in legal marital status refers to those who made transitions between married, divorced or widowed states and does not detect transitions into or out of a cohabiting union.

in the analysis is to be grouped and the substantive interest is in whether those with long durations (e.g. 10 years) have significantly different repartnering patterns compared with those who had much shorter durations of only a couple of years, then not being able to measure union duration more accurately in terms of months, rather than years, is unlikely to make a significant difference in the analysis.

Defining the number of previous partnerships

In order to identify the total number of previous partnerships a lone mother had had, it was necessary that lifetime cohabitation or marital history was collected at some point across the survey waves for an individual. If entry into lone motherhood occurred after this time it was necessary that they had been observed in each wave subsequent to the collection of the histories and up to the time of becoming a lone mother, unless there was evidence to suggest their partnership status had not changed over any years they were missing from (see section on wave non-response and the coding of partnership status below). In general, information on total number of previous partnerships was obtained from the lifetime cohabitation and marital history data collected in wave two of the BHPS. However, for a number of women who were not interviewed at this time (mainly due to the fact they were either a TSM and hence not present in the survey at this time, or because they were a child under age 16 years) it was possible to obtain this information from the 'catch up' cohabitation history information collected in wave eight. In addition, the limited variables on partnership history collected in waves subsequent to wave eight also allowed the identification of the number of previous partnerships for some women.

In some circumstances it was not possible to identify the total number of previous partnerships of a lone mother due to missing marital or cohabitation history data; high levels of wave non-response in preceding years up to entry into lone motherhood; or other reasons such as missing information on the personal identification number of the spouse or inconsistencies between the individual and marital or cohabitational history files. In such cases, the total number of previous partnerships was recorded as missing (see Section 4.5.3 on item non-response for a discussion of the numbers involved and the method implemented to deal with this missing data).

In addition to this, if a woman recorded herself to be never-married in between two years where she is reported to be in a cohabitation with the same person, then the

partnerships either side of the year(s) of being never-married were coded as two separate partnerships (this only concerned three women overall). In the same respect, if a woman went from being in a partnership with one person in one year, then was in a partnership with another person in the following year, but then went back to the original partnership a year later, the partnerships were coded as three separate partnerships (this only actually concerned one woman). These decisions were due to the fact that the aim of this variable was to distinguish between those people that remained in a stable partnership for a long period of time versus those that moved in and out of a partnership. Whether or not it was with the same person was not of particular interest.

Wave non-response and the coding of partnership status

Considering wave non-response it was decided that any women with missing information over a period of one or even several years due to the fact that they were unable or refused to be contacted were assumed to have remained in the same relationship with no break if they were found to be either cohabiting or married with the same partner either side of the missing year(s). Since the personal identification number of the spouse was measured in each wave then identifying whether the partner was in fact the same person in each wave surrounding the missing year(s) was straightforward. Where a woman was missing and a different partnership was observed either side of the missing year(s) and this concerned the most recent previous partnership, the duration of the partnership was set to missing.

Inconsistencies between the marital and cohabitation history data and data collected in the individual file

In coding the partnership histories of these lone mothers it became apparent that there were some inconsistencies between the information collected in the individual file on marital status and that collected in the cohabitation or marital history files for a small minority of cases. In each of the four cases the respondent was reported to be either never-married or separated in wave two (1992) according to the individual file, but according to the history file was recorded as cohabiting at this time. For two of these women this had no effect on the coding of their previous partnership duration as they actually only entered lone motherhood in 2002 and hence the inconsistency was related to a different partnership previous to the one which resulted in them becoming a lone mother in 2002. However, for the remaining two cases this inconsistency was related to their most recent partnership with the individual file recording both these woman to be

never-married in 1991 and 1992 and cohabiting in 1993, but the cohabitation history file collected in 1992 reporting both woman as cohabiting at this time with cohabitations beginning in 1991 and 1992 respectively. Since it was unclear whether in fact the relationship recorded in the history file in 1992 was the same relationship as that recorded in the individual file a year later and also if it was, when exactly it began, it was decided to use the information collected in the individual file as being correct (for a more detailed explanation of the reasoning for this decision see Section 4.5.4 where recall bias is discussed). This meant that their previous partnerships were coded as beginning in 1993 for both women and hence their previous union duration was measured as two years and one year less respectively, compared to if the information from the history file had been used. Since, as previously mentioned, the variable measuring previous union duration is to be grouped in the analysis this slight discrepancy is unlikely to affect the analysis in any case. The discrepancy was also taken into consideration when coding the total number of partnerships a woman had previously had. Since it was not certain whether this was a different partnership or not then it was not included as so.

Another discrepancy between files concerned one woman who was recorded in the individual file in 1992 as separated from a marriage, yet when matching the responses for this women from the marital history file no information was found relating to the starting and separation dates of this relationship. Interestingly though, it was found that there were some partnership start and end dates recorded for this woman in the cohabitation history file. Since the end dates found in this file matched with the information found in the individual file for this woman it was assumed that this was an error made by the interviewer whereby the dates of the separation of the marriage were filled out on the form relating to cohabitations instead. These dates were therefore substituted as the dates of separation of the marriage in the absence of any other information.

4.3.3 Coding of partnership histories for those entering lone motherhood through giving birth whilst single and never-married

Whilst by definition these lone mothers have never been married, it is likely that a proportion may have experienced a cohabiting relationship in the past. For this type of lone mother it was not necessary, however, to use the procedure described above to

create partnership histories due to the release of a consolidated marital and cohabitation history file containing retrospective histories for all individuals in the BHPS. Merging this file with the sample of single never-married lone mothers enabled construction of the number of previous partnerships for these lone mothers. Given that only around 15 per cent of the sample appeared to have ever been in a cohabiting relationship, the duration of the prior union was not coded for this type of lone mother.

4.3.4 Appending the subsequent waves for each of the sub-samples of lone mothers

Once the responses to each of the variables of interest had been obtained, the next step was to append the responses to each of the selected variables for the rest of the waves each person was in the study in order to obtain wave on wave responses for use as the time-varying covariates. Each sub-sample was taken in turn and the rest of the waves were appended up to wave fourteen. In each case the subject's responses to the variables at each wave were appended up to the first time that they were completely lost from the study (i.e. did not provide any type of interview). For example, if a respondent entered lone motherhood in 1998 but only responded in the study up until 2002 then they would have five lines of data in the dataset. At this stage it was important to create a variable for each of the sub-samples to identify the year of entry into lone motherhood in order to distinguish between the different cohorts of lone mothers in the final sample.

4.3.5 Final appending of all sub-samples

The next step was to 'stack' all the sub-samples of lone mothers together to create two samples, one containing those that had become lone mothers through the breakdown of a previous partnership and one including those entering lone motherhood through having a birth whilst single and never-married. These two samples therefore contained all women that became a lone mother at some point throughout the life of the panel and their responses to selected variables over the subsequent waves that they were interviewed in the panel. As can be seen in Table 4.1, the overall sample sizes achieved at this stage were 491 lone mothers that had entered through the breakdown of a previous partnership and 99 single never-married lone mothers.

4.3.6 Defining periods 'at risk'

In order for the analysis to be carried out it was necessary to identify the periods where a lone mother was 'at risk' of repartnering. This therefore included any periods after the year of becoming a lone mother and up to and including the year of repartnering, or the year their children grew up (i.e. the year their youngest child reached age 16 years). A variable to identify a move into a partnership was therefore required for each sample. Those identified as (re)partnering included any women that went from being a lone mother in a particular wave to either cohabiting or married with dependent children in the following wave and where the spouse was recorded as living in the household at this time. In addition a variable to identify those whose children grew up was created and included any women that went from having dependent children living in the household in a particular wave to having no dependent children living in the household in the following wave. All periods where a lone mother was not at risk, which therefore included the survey wave in which they were found to have become a lone mother and any survey waves after they were found to have either repartnered, or their children had grown up, were therefore deleted from the dataset.[15] (An example of the format of the final dataset can be seen in Figure 5.3.) After the creation of the variable measuring repartnering it was found that none of the women in the sample of previously partnered lone mothers repartnered after nine years and none of the never-married single lone mothers repartnered after eight years.   Furthermore, the number of women in each sample remaining after these time points was extremely small, only nine and six women respectively. The analysis was therefore restricted to time periods under ten years and under nine years for the two samples respectively. It is acknowledged here that those in the sample for the longer durations will be a select group of lone mothers which entered lone motherhood in the early years of the study period and had younger children at this time point. However controls will be used in the analysis to account for such issues.

---

[15] As a result of this process a number of lone mothers were lost from the samples (35 from the sample of those separated from a previous partnership and two from the sample of those that were single never-married). This was due to the fact that these women did not remain in the survey for any waves after the wave in which they were found to have become a lone mother and hence did not provide any years at risk available for analysis.

4.4 Variables selected for analysis

4.4.1 Variables to be used in the analysis of those becoming a lone mother through the breakdown of a partnership

Table 4.2a Fixed-time demographic variables included in the analysis of repartnering for those becoming a lone mother through the breakdown of a partnership

Variable	Coding	Notes
Age	1 = 18-24 years 2 = 25-29 years 3 = 30-34 years 4 = 35 + years	
Number of children	1 = One child 2 = Two children 3 = Three or more children	
Age of youngest child	1 = Under 5 years 2 = 5-11 years 3 = 12-15 years	
Type of lone mother	1 = Previously married 2 = Previously cohabiting	
Previous union duration	1 = Less than 5 years 2 = 5 to 9 years 3 = 10-14 years 4 = 15 years and over	
Total number of previous partnerships	1 = 1 partner 2 = 2 partners 3 = 3 or more partners	

Included in the analysis of repartnering among those becoming a lone mother through the separation of a previous partnership were a number of demographic and socioeconomic variables. Many of these were fixed-time covariates taken from the survey year in which a woman was first observed to be a lone mother and can be found in Tables 4.2a above and 4.2b below. For example, if a woman was found to become a lone mother between the 1991 and 1992 survey waves, then the variables refer to her response given in 1992.

Table 4.2b Fixed-time socio-economic variables included in the analysis of repartnering for both samples

Variable	Coding	Notes
Highest Academic qualification*	1 = Degree, HND, HNC, teaching qualification 2 = A levels 3 = O levels 4 = CSE 5 = None of these	
Housing tenure*	1 = Owner occupier 2 = Local authority/Housing assoc. rented 3 = Other rented	
Social class*	1 = Professional & managerial/ technical occupation 2 = Skilled non-manual 3 = Skilled manual 4 = Partly skilled/unskilled occupation 5 = Missing	Registrar General's social class and based on occupation of most recent job. Missing category includes those where social class is either missing due to item non-response or because the woman had never had a job.
Region	1 = Southern regions 2 = Northern regions 3 = Wales/Scotland/N.I.	

*variables missing if proxy/telephone interview

Other fixed-time covariates included in the analysis were taken from the "Variable component" or "Rotating-core" group of questions in the survey (described above) which were only asked in certain waves of the BHPS (Table 4.3). Some of these variables established the 'initial conditions' such as ethnic group membership and were obviously fixed for each respondent across the length of time in the study and hence only collected at the time of first interview. Others, such as religion, were collected at various points throughout the survey. In this analysis the variables for religion and attendance at religious services refer to their response given either in the first year they were observed to have become a lone mother, if it was asked in that particular year, or at the closest possible wave (either before or after this time) for those where it was not asked in this year.

Table 4.3 Fixed-time variables (taken from other waves) included in the analysis of repartnering for both samples

Variable	Coding	Notes
Ethnicity	1 = White 2 = Other	
Religion	1 = No religion 2 = C of E/Anglican 3 = Roman Catholic 4 = Other religion	
Attendance at religious services	1 = Once a week or more 2 = At least once a month 3 = At least once a year 4 = Practically never 5 = Only weddings/funerals	

Several time-varying variables were also investigated in the analysis and these can be seen in Table 4.4 below. These were collected at each wave a respondent remained in the study and were therefore allowed to vary over the years at risk of repartnering for each respondent. In order to make sure that these variables relate to the circumstance of a woman before she repartners these variables were lagged by one year. For example, the variable for employment status in each period refers to a lone mother's employment status at the beginning of the interval over which she is at risk.

Table 4.4 Time-varying variables included in the analysis of repartnering for both samples

Variable	Coding	Notes
Current employment status	1 = Employed 2 = Unemployed 3 = Family care 4 = Other	
Receipt of Maintenance or Alimony*	1 = Yes 2 = No	Has received alimony/maintenance over the past year
Receipt of Income Support*	1 = Yes 2 = No	Has received income support over the past year
Receipt of Housing Benefit*	1 = Yes 2 = No	Has received housing benefit over the past year
Financial situation*	1 = Living comfortably 2 = Doing alright 3 = Just about getting by 4 = Finding it quite difficult 5 = Finding it very difficult	Self-perceived financial situation over the past year
Limiting health	1 = Yes 2 = No	Does your health in any way limit your daily activities compared to most people of your age?
GHQ Score*	1 = GHQ 0-3 2 = GHQ 4-6 3 = GHQ 7-12	Answers to the General Health Questionnaire (GHQ) question battery converted to a 12 point scale.
Annual income*	1 = £5,000 or less 2 = £5,000.01- £10,000.00 3 = £10,000.01- £15,000.00 4 = £15,000.01- £20,000.00 5 = £20,000.01 or more 6 = Missing	
Household type	1 = Lone parent household 2 = Couple or other household	

*variables missing if proxy/telephone interview

Finally, two control variables were used (see Table 4.5), one to control for the year a woman entered lone motherhood and another to control for the sample a lone mother was from (e.g. original Essex sample or from the ECHP or extension samples)

Table 4.5 Control variables included in the analysis of repartnering for both samples

Variable	Coding	Notes
Year of entry to lone motherhood	1 = 1992 2 = 1993-1994 3 = 1995-1996 4 = 1997-1999 5 = 2000-2003	Where 1992 refers to a woman becoming a lone mother at some time between the 1991 and 1992 survey waves, for example
Sample membership status	1 = Original Essex sample 2 = Extension sample	Where extension sample category includes all those in the Scotland, Wales or Northern Ireland Extension samples as well as those from the ECHP sub-samples

4.4.2 Variables to be used in the analysis of those becoming a lone mother through having a birth whilst single and never-married

For the analysis of repartnering among those becoming a lone mother through having a birth whilst single and never-married, again, a variety of time-fixed covariates and time-varying covariates were under investigation. Except for the fixed-time demographic variables collected at the time of becoming a lone mother (see Table 4.6 below) other variables to be included in the analysis were the same as in the analysis of those becoming a lone mother through the breakdown of a union (found in Tables 4.2b, 4.3, 4.4 and 4.5).

Table 4.6 Fixed-time demographic variables for single never-married lone mothers

Variable	Coding	Notes
Age	1 = 16-19 years 2 = 20-24 years 3 = 25-29 4 = 30+ years	
No. of previous partnerships	1 = No previous partner 2 = 1 partner 3 = 2 partners	

4.5 Data quality

The quality of the data under analysis clearly has important implications for the validity of the results from this study. This section begins by discussing the different types of error present in survey data. Following this several aspects of non-sampling error, namely wave non-response and attrition, item non-response and recall error are considered in more detail.

4.5.1 Sampling and non-sampling error

Survey errors can be sub-divided into two types of error, namely sampling and non-sampling error. Sampling error refers to the random error produced as a result of the fact that only a sample of the population is surveyed rather than the whole population and that the sample units (i.e. the individual respondents) are different from each other (Groves, 1989). The variability of this sampling error is measured by the standard error, which can then be used to construct confidence intervals for sample estimates. Later, in the results of the multivariate analyses, these measures of sampling error will be reported to indicate the level of accuracy surrounding the sample estimates in this analysis. However, what must be borne in mind when interpreting these measures of error is that, as highlighted by Groves (1989), the standard error of a survey estimate does not reflect the error resulting from non-sampling errors such as non-response or non-coverage and often underestimates the total variability of that sample estimate if repeated samples were taken.

Non-sampling error refers to systematic errors that do not arise merely from only taking a sample of the population rather than a census, but encompass a number of different errors or biases which can be attributed to sources such as question wording, interviewer effects, coverage error (where certain people are not included in the sampling frame) and non-response (Taylor et al., 2006). These types of error are problems for all surveys and as described by Taylor et al (2006) are minimised as much as possible through the design and implementation of the BHPS. However non-response poses a particular threat to the quality of panel data and will be discussed in more detail below.

4.5.2 Wave non-response and attrition

Non-response is a common problem in all surveys, but is a particular problem in panel surveys. Not only is the survey subject to non-response in the initial wave, due to people not being at home or refusing to be interviewed for example, but it is then subject to these same problems of non-response in subsequent waves (Kalton, Kasprzyk and McMillen, 1989). Furthermore, as Kalton et al (1989) go on to describe, as the panel ages, non-response generally increases (although the rate of increase does decline over time) which results in an increased risk of bias in sample estimates.

The key problem with non-response does not just concern the reduction in sample sizes that results from the diminished pool of respondents at each wave, but that those who are not contacted may be systematically different from those who are contacted. Indeed Lynn (2006) found that non-respondents in the BHPS do contain a disproportionate number of people with particular characteristics as can be seen in Figure 4.2 below.

Figure 4.2 Factors associated with non-response in the BHPS

* Age 16-24
* Never-married
* Unemployed
* No qualifications
* Not active in any organisations
* Resident in Inner London, West Midlands conurbation, Merseyside
* Local authority or housing association tenant
* In the bottom 40% of the income distribution

Source: Lynn (2006), p.63

Non-response can be further sub-divided into two categories –wave non-response and attrition which will be outlined separately below due to the different methods employed in this study to deal with these different aspects of non-response.

Wave non-response

Wave non-response refers to the circumstance when one wave of data is missing for a particular respondent at a particular point in time as a result of an inability to contact them at this particular point (Little, 1992). In order to obtain maximum sample sizes for this study no distinctions were made at any stage in the process of selecting the samples

for analysis between those that provided a full interview and those for which only a telephone or proxy interview was achieved, providing there was at least enough evidence to determine that they had become a lone mother in the first place. A number of women (31 women in the sample of lone mothers separated from a partnership and six of the sample of single never-married lone mothers) had one or more waves where only a proxy or telephone interview was available. Further exploration revealed that eleven of those separated from a previous partnership and one single never-married lone mother only provided a proxy or telephone interview at the actual time of becoming a lone mother. At this stage a small number of women (nine separated lone mothers and one single never-married lone mother) were deleted from the samples. These deletions included any women that did not provide a full interview at any point over their time at risk; provided only a proxy or telephone interview at the time of repartnering; or did not provide a full interview for two consecutive years, where the years were in the middle of their time at risk. The overall final sample sizes achieved therefore included 447 previously partnered lone mothers and 97 single never-married lone mothers. Table 4.7 below shows how these sample sizes are broken down across the waves. For any women with a proxy or telephone interview at their last wave at risk (and who did not repartner) this last wave was deleted from the analysis and hence they were censored one year earlier.

Table 4.7 Final achieved sample sizes by year of entry into lone motherhood

Year of entry to lone motherhood	Sample size	
	Lone mothers separated from a previous partnership	Single never-married lone mothers
1991-1992	34	5
1992-1993	34	13
1993-1994	28	7
1994-1995	26	9
1995-1996	29	3
1996-1997	36	11
1997-1998	39	2
1998-1999	34	10
1999-2000	56	5
2000-2001	26	10
2001-2002	53	12
2002-2003	52	9
Total sample size	447	96

Several variables required for the analysis which were taken from the time at which a woman became a lone mother were missing if the respondent did not provide a full

interview at this time (housing tenure, academic qualifications and social class). After removing a number of women from the samples due to wave non-response as detailed above the samples still included eight separated lone mothers and one single never-married lone mother where a full-interview was not achieved at the time of becoming a lone mother. A process of interpolation was used to substitute in values on the particular variables missing due to non-response at this wave whereby the use of prior and subsequent waves were obtained for each woman and used to estimate the missing value. As described by Menard (2002) this method is reasonable for variables which either change little over time, or for which the pattern of change is well-known, but less so for other variables which may be more volatile over time, such as attitudinal variables. Exploratory analysis of all women that provided a full interview in both these years and who did not repartner in the first year at risk revealed that there was indeed little change in these variables over this time period. A maximum of 20 per cent of women were observed to change their housing tenure and changes in educational or academic qualifications occurred for less than four per cent of people. Since it was found that these variables remain fairly static across the waves for each person it was considered an acceptable imputation technique. In only two cases when the prior and subsequent waves were examined were any differences in these variables found. In these occurrences the technique of last observation carried forward was employed.

A number of the time-varying variables required for the analysis were missing if a full interview was not achieved (benefit receipt, income, self-perceived financial situation and GHQ score). For the four cases where a full interview was not achieved at some point over their time at risk no imputation was carried out due to the small number of cases and missingness on these variables was treated as a form of item non-response (see below for the methods used to deal with this).

Attrition from each of the samples of lone mothers

Attrition refers to the instance when a respondent is lost at a particular time in the study and remains lost from that time onwards for the duration of the study. It is important to consider attrition in the sample since a high level may bias analyses and reduce effective sample size (Lynn, 2006). An examination of the percentage of the original sample responding up to each wave provides an indication of the level of attrition affecting the sample. However, such simple analyses of attrition cannot be employed in this study due to the way in which the datasets have been constructed. Respondents were selected

for analysis from different waves of the BHPS and hence clearly have a variable maximum number of waves that they could possibly appear in. For example, a woman who enters lone motherhood in 1991 has a potential maximum of thirteen waves of data over which they can be analysed whereas a woman entering lone motherhood in 2001 only has a maximum of three years at risk of repartnering. Any analysis of attrition must therefore take into account the survey year a woman entered lone motherhood.

Furthermore, the format of the data (see Figure 5.1 for an example of the data format in this analysis) whereby individuals are only represented in the dataset up until the time they repartner, or they are censored due to either non-contact or their children growing up, further complicates any simple analysis due to the fact that those repartnering in the first year of risk would appear to have a very short duration in the study (in fact only one year). However, in reality it may be that they provided full interviews for the rest of the survey. The analysis below therefore takes this into consideration by looking at attrition rates of the sample before repartnering and any censoring was taken into account. Considering the sample before these factors are taken into account is important as it highlights the women that are unlikely to be found to repartner in the sample due to leaving the sample after very few years. The number of individuals censored due to either their children growing up (hence becoming non-dependent) or due to attrition or the end of the observation period is also explored to provide an indication of the level of censoring in the final samples.

Table 4.8 Non-response in the whole BHPS sample

	Per cent of eligible responding at all waves
Wave 2	87.7
Wave 3	79.1
Wave 4	74.8
Wave 5	70.6
Wave 6	68.7
Wave 7	66.7
Wave 8	64.7
Wave 9	62.4
Wave 10	60.0
Wave 11	59.3
Wave 12	57.1
Wave 13	55.1

Source: Adapted from Table 67, Lynn (2006) p.127

Before proceeding with an examination of the attrition from the samples, Table 4.8 above shows the overall response rates of wave one respondents in the BHPS allowing comparisons to be drawn between attrition rates in this study and those affecting the survey as a whole. From this it can be seen that the percentage of those eligible responding at each wave decreases over the waves of the study. Only 55 per cent of those eligible have responded at all waves up to wave thirteen. The biggest drop in response is seen in the early waves of the study; by later waves the percentage lost at each wave is smaller.

Attrition in the sample of women becoming a lone mother through the breakdown of a partnership:

Considering firstly the sample of women who became lone mothers through the breakdown of a partnership before any repartnering or censoring due to children growing up is taken into account, it can be seen, as would be expected, the numbers responding at each time point for each of the samples decrease over time (Table 4.9).

Table 4.9 Responses at each time by year of entry to lone motherhood before repartnering and censoring due to age of children taken into account for those becoming a lone mother through the breakdown of a partnership

Time since becoming a lone mother (years)	Year of entry into lone motherhood												Total
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
1	34	34	28	26	29	36	39	34	56	26	53	52	447
2	34	31	27	26	28	33	39	30	47	22	51	0	368
3	30	31	26	26	26	30	34	23	46	22	0	0	294
4	29	29	22	26	26	29	30	23	43	0	0	0	257
5	29	27	20	24	23	29	27	22	0	0	0	0	201
6	28	27	20	21	23	24	27	0	0	0	0	0	170
7	26	27	20	20	22	24	0	0	0	0	0	0	139
8	24	26	20	19	18	0	0	0	0	0	0	0	107
9	23	24	19	19	0	0	0	0	0	0	0	0	85
10	21	23	18	0	0	0	0	0	0	0	0	0	62
11	20	21	0	0	0	0	0	0	0	0	0	0	41
12	19	0	0	0	0	0	0	0	0	0	0	0	19

Despite a general decline in the response rates at each respective time point since becoming a lone mother for those becoming lone mothers more recently, percentages responding up to and including each time point (Table 4.10) are not dissimilar from

those shown in Table 4.8 reflecting that the levels of attrition in the samples under analysis are not any more extensive than that of the BHPS as a whole.[16] Considering that some of the characteristics of lone mothers are those which have been found to be associated with non-response in the BHPS (See Figure 4.2 above), such as unemployment, low income and lower educational attainment, one would expect response rates of these samples of lone mothers to be lower than those achieved in the BHPS overall.

Table 4.10 Percentage responding at all times by year of entry into lone motherhood for sample containing those becoming a lone mother through the breakdown of a partnership

Time since becoming a lone mother (years)	Year of entry into lone parenthood										
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
2	100	91.2	96.4	100	96.6	91.7	100	88.2	83.9	84.6	96.2
3	88.2	91.2	92.9	100	89.7	83.3	87.2	67.6	82.1	84.6	-
4	85.3	85.3	78.6	100	89.7	80.6	76.9	67.6	76.8	-	-
5	85.3	79.4	71.4	92.3	79.3	80.6	69.2	64.7	-	-	-
6	82.4	79.4	71.4	80.8	79.3	66.7	69.2	-	-	-	-
7	76.5	79.4	71.4	76.9	75.9	66.7	-	-	-	-	-
8	70.6	76.5	71.4	73.1	62.1	-	-	-	-	-	-
9	67.6	70.6	67.9	73.1	-	-	-	-	-	-	-
10	61.8	67.6	64.3	-	-	-	-	-	-	-	-
11	58.8	61.8	-	-	-	-	-	-	-	-	-
12	55.9	-	-	-	-	-	-	-	-	-	-

An examination of the number of censored individuals by the type of censoring in the sample (Table 4.11) reveals that the numbers censored due to their children becoming non-dependent are far smaller than those censored as a result of attrition or the observation period coming to an end. Overall, around 13 per cent of observed spells end due to their children growing up, 46 per cent are censored due to attrition or the observation period coming to an end and 41 per cent are found to repartner.

---

[16] Percentages in Table 3.2 refer to the percentage response rate of those eligible to respond and hence take into account those that were lost due to death or migration. Therefore, although not exactly comparable with Tables 3.7 and 3.12 which do not take these factors into account it provides a reasonably good comparison.

Table 4.11 Frequency censored by censoring type among those becoming a lone mother through the breakdown of a partnership

Time since becoming a lone mother (years)	Total no. of lone mothers still responding	Frequency repartnering between waves	Frequency lost† between waves	Frequency children grow up between waves
1	447	73	64	16
2	294	38	47	13
3	196	29	16	8
4	143	14	28	4
5	97	10	12	4
6	71	9	10	6
7	46	4	8	5
8	29	4	1	1
9	23	1	19	3
Total		182	205	60

†Lost either as a result of attrition or the end of the observation period

Attrition in the sample of single never-married lone mothers:

Table 4.12 shows attrition from the sample of single never-married lone mothers before repartnering or censoring has been taken into account and shows again how the numbers responding declines over time since becoming a lone mother.

Table 4.13 shows the percentages responding up to and including each time point and again shows how these decline over time since becoming a lone mother and are generally lower at each respective time point for those entering lone motherhood more recently. Interestingly though for those lone mothers entering lone motherhood up to and including 1996 it can be seen that response rates at each time point are higher in this sample than for the sample of previously partnered lone mothers.

Table 4.12 Responses at each time by year of entry to lone motherhood before repartnering and censoring due to age of children taken in account for those becoming a single never-married lone mother

Time since becoming a lone mother (years)	Year of entry into lone motherhood												Total
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	
1	5	13	7	9	3	11	2	10	5	10	12	9	96
2	5	13	7	9	3	10	1	10	4	9	10	0	81
3	5	13	7	9	3	10	1	7	4	7	0	0	66
4	5	13	7	8	3	9	1	6	3	0	0	0	55
5	5	13	7	8	3	8	1	6	0	0	0	0	51
6	5	12	7	8	3	8	1	0	0	0	0	0	44
7	5	10	7	8	3	8	0	0	0	0	0	0	41
8	5	9	7	7	3	0	0	0	0	0	0	0	31
9	4	9	7	7	0	0	0	0	0	0	0	0	27
10	4	9	7	0	0	0	0	0	0	0	0	0	20
11	4	8	0	0	0	0	0	0	0	0	0	0	12
12	4	0	0	0	0	0	0	0	0	0	0	0	4

Table 4.13 Percentage responding at all times by year of entry into lone motherhood for those becoming a single never-married lone mother

Time since becoming a lone mother (years)	Year of entry into lone motherhood										
	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002
2	100	100	100	100	100	90.9	50.0	100	80.0	90.0	83.3
3	100	100	100	100	100	90.9	50.0	70.0	80.0	70.0	-
4	100	100	100	88.9	100	81.8	50.0	60.0	60.0	-	-
5	100	100	100	88.9	100	72.7	50.0	60.0	-	-	-
6	100	92.3	100	88.9	100	72.7	50.0	-	-	-	-
7	100	76.9	100	88.9	100	72.7	-	-	-	-	-
8	100	69.2	100	77.8	100	-	-	-	-	-	-
9	80.0	69.2	100	77.8	-	-	-	-	-	-	-
10	80.0	69.2	100	-	-	-	-	-	-	-	-
11	80.0	61.5	-	-	-	-	-	-	-	-	-
12	80.0	-	-	-	-	-	-	-	-	-	-

Table 4.14 provides an indication of the level of censoring present in the final sample of

single never-married lone mothers. It can be seen that around 62 per cent of the

observed spells are censored due to attrition or the end of the observation period and 38 per cent end as a result of the lone mother finding a new partner.

Table 4.14 Frequency censored among single never-married lone mothers

Time since becoming a lone mother (years)	Total no. of lone mothers still responding	Frequency repartnering between waves	Frequency lost between waves
1	95	14	15
2	66	6	14
3	46	6	8
4	32	5	2
5	25	3	2
6	20	1	4
7	15	0	5
8	10	1	9
Total		36	59

Overall therefore it can be seen that attrition in the samples to be used in this analysis is not dissimilar to that encountered in the BHPS as a whole. Analysis of attrition in the whole BHPS sample indicates that the impact is not substantial (Lynn, 2006). Furthermore, attrition rates in the BHPS are not dissimilar to those experienced by other household panel surveys, such as the Household Income and Labour Dynamics in Australia Survey (HILDA) or the German Socio-Economic Panel (GSOEP) (Watson and Wooden, 2006). Although weights can be used to account for any bias resulting from non-response, these are used to allow inferences to be made about the survey population from which the sample was drawn. In the BHPS, longitudinal weights have been constructed to take account of those lost between waves through refusal or some other form of sample attrition. However, these are only calculated for respondents present in every wave up until that point, a condition which is not a requirement for lone mothers present in the samples in this analysis. Due to this and that this analysis is only investigating and wishes to make references about a sub-set of the population, then weighting is not a requirement or possible in this instance. Furthermore, the factors found to be associated with non-response in the BHPS, as outlined above in Figure 4.2, are to be included as control variables in the analysis to account for any bias associated with non-response.

4.5.3 Item non-response

Even when a full interview is achieved in a survey, responses to certain questions are often missing, a problem commonly known as item non-response. Among other things this may be a result of refusal on the part of the respondent to answer the question, or interviewer error such as mistakes in following complicated filter questions (Little, 1992). Whatever way the missing data is generated, it is a particular problem in all social surveys, as described by Taylor et al (2006), and must be dealt with using one of the many techniques which exist. One method to deal with this type of missing data is to simply delete any cases with missing values on any of the variables of interest, a process known as 'listwise deletion' or 'complete case analysis'. For many statistical packages listwise deletion is the default solution to deal with missing data and, as described by Little and Rubin (2002), has two advantages: firstly, simplicity, as it permits the use of standard complete case statistical analysis without the need for modifications; and secondly, it allows the comparison of univariate statistics since these are all calculated from the same base sample. A major disadvantage of this method, however, is the loss of data, which in some cases may be substantial (Allison, 2002). As highlighted by Little and Rubin (2002) there are two facets to this loss of information, firstly a loss in precision and secondly bias due to that fact that those missing may be systematically different to those present. If the proportion of missing data is large, a more satisfactory way to deal with it would be to impute missing values using single or multiple imputation (see Kalton and Kasprzyk, 1982; 1986; or Little and Rubin, 1987 for a review) or alternatively use maximum likelihood estimation (see Little and Rubin, 1987). However, Little and Rubin (2002) suggest that in circumstances where the loss of precision and bias is considered minimal, listwise deletion may be justified in terms of simplicity. Graham and Hofer (2000) in Menard (2002) suggest this technique can be regarded as acceptable providing the loss of cases is less than five per cent.

Tables 4.15 to 4.18 below show the percentage of missing data on each of the covariates to be used in the models of repartnering for each type of lone mother. For the majority of the variables to be investigated in the analysis, it can be seen that the percentage of missing data is less than one per cent of observations. Tables 4.19 and 4.20 show the pattern of missing data across variables which have less than three per cent of their observations missing. From Table 4.19 it can be seen that 1,298 cases have no missing

data across any of the variables and 18 cases just have missing values for GHQ score, for example. What is clear from these tables is that the overall proportion of each sample with any missing data on these variables is small. In fact it was found that listwise deletion of missing data on these variables yields a total of less than 5 per cent of person-years lost from each sample. This method was therefore chosen as the preferred method to deal with this missing data.

Both social class and annual income had a higher proportion of missing data however, which could not be dealt with simply by deleting observations. Missing data on the social class variable is primarily as a result of women who have never had a job and hence their social class could not be coded. Higher levels of missing data on income are generally expected given the sensitivity of income related questions. Missing data on both these variables is to be dealt with by creating a missing category.

Finally, the missing data on the variables measuring length of previous union and total number of previous partnerships for lone mothers separated from a previous partnership is to be dealt with by running separate analyses, one which uses these variables and drops any women with missing values on these variables from the analysis and one where these variables are not included. Since it was necessary in most cases to derive this information using the lifetime marital and cohabitation histories which were only collected in three waves of the BHPS then missing data on this variable is largely due to respondents not being present at these times. Furthermore, it is not that respondents were non-contactable or refused to be contacted at these times, but due to them not being eligible for interview. For example, in this analysis nearly 80 per cent of the original Essex sample who have missing information for either one of these variables were not part of the survey in 1992 when lifetime marital and cohabitation histories were collected due to the fact that they were not OSMs (and were either the parent or partner of an OSM or were a TSM) or because they were a child under age 16 in wave two. Missing data on this variable is therefore considered to be missing at random (MAR)[17] and although any analysis including these covariates might produce estimates which may be less precise due to the smaller sample size, estimates are assumed to be unbiased.

---

[17] Missing at random (MAR) refers to when the probability of non-response depends on observed but not unobserved responses.

Table 4.15 Missing data on fixed-time covariates used in analysis of repartnering for those becoming a lone mother through the breakdown of a partnership

Fixed-time Variables (measured at time of becoming a lone mother unless otherwise stated)	Frequency missing (person-years)	Per cent missing (person-years)
Age	0	0.00
Type of lone mother	0	0.00
Age of youngest child	0	0.00
Year of entry to lone motherhood	0	0.00
Number of children	0	0.00
Housing tenure*	6	0.45
Highest academic qualification*	5	0.37
Social class	59	4.38
Previous union duration	97	7.21
Number of previous partners	148	11.00
Religion	0	0.00
Religious attendance	0	0.00
Region	5	0.37
Ethnic group	7	0.52
Sample origin	0	0.00

*Variables not available in telephone or proxy interview

Table 4.16 Missing data on time-varying covariates used in analysis of repartnering for those becoming a lone mother through the breakdown of a partnership

Time-varying Variables	Frequency missing (person years)	Per cent missing (person years)
Current employment status	0	0.00
Income Support*	12	0.89
Housing Benefit*	12	0.89
Maintenance/alimony*	12	0.89
Financial situation*	13	0.97
Limiting health	0	0.00
GHQ score*	31	2.30
Annual income*	75	5.57
Household type	0	0.00

*Variables not available in telephone or proxy interview

Table 4.17 Missing data on fixed-time covariates used in analysis of single never-married lone mothers

Fixed-time Variables (measured at time of becoming a lone mother unless otherwise stated)	Frequency missing (person-years)	Per cent missing (person-years)
Age	0	0.00
Year of entry to lone motherhood	0	0.00
Housing tenure*	2	0.65
Highest academic qualification*	4	1.29
Social class	36	11.65
Religion	2	0.65
Religious attendance	0	0.00
Region	0	0.00
Ethnic group	0	0.00
Sample origin	0	0.00

*Variables not available in telephone or proxy interview

Table 4.18 Missing data on time-varying covariates used in analysis of single never-married lone mothers

Time-varying Variables	Frequency missing (person years)	Per cent missing (person years)
Economic activity	0	0.00
Income Support*	2	0.65
Housing Benefit*	2	0.65
Maintenance/alimony*	2	0.65
Financial situation*	2	0.65
Limiting health	0	0.00
GHQ score*	2	0.65
Annual income*	36	11.65
Household type	0	0.00

*Variables not available in telephone or proxy interview

Table 4.19 Missing data pattern across variables with less than three per cent missing data (those becoming a lone mother through the breakdown of a partnership)

Highest academic qualification	Housing tenure	Ethnic group	Region	Income Support	Housing Benefit	Alimony	Financial situation	GHQ Score	Freq.
0	0	0	0	0	0	0	0	0	1298
0	0	0	0	0	0	0	0	1	18
0	0	0	0	0	0	0	1	0	1
0	0	0	0	1	1	1	1	1	11
0	0	0	1	0	0	0	0	0	5
0	0	1	0	0	0	0	0	0	1
0	0	1	0	0	0	0	0	1	1
0	1	0	0	0	0	0	0	0	6
1	0	1	0	0	0	0	0	0	4
1	0	1	0	1	1	1	1	1	1

Table 4.20 Missing data pattern across variables with less than three per cent missing data (single never-married lone mothers)

Religion	Highest academic qualification	Housing tenure	Income Support	Housing Benefit	Alimony	Financial situation	GHQ score	Freq.
0	0	0	0	0	0	0	0	299
0	0	0	1	1	1	1	1	2
0	0	1	0	0	0	0	0	2
0	1	0	0	0	0	0	0	4
1	0	0	0	0	0	0	0	2

4.5.4 Recall error

As previously mentioned, the number of previous partnerships a woman had had over her lifetime, as well as the duration of the most recent of such partnerships was in many cases determined using retrospective partnership history data collected in the BHPS. The problem with gathering information in this way as described by Paull (2002) is that "the act of recollection may generate "recall" biases, whereby reported behavior is not only subject to random errors but also systematic errors that may intensify as the period of recall increases". As highlighted by Bailar (1989) this may result in the omission of an event entirely, or contrastingly, the reporting of an event that did not actually occur as well as inaccurate placing of events in time.

In general, research has found that the longer the length of time over which a respondent is expected to recall information, the more inaccurate the information is likely to be

(Diamond and McDonald, 1992). Furthermore, more salient events are more likely to be remembered than those which are less salient (Sudman and Bradburn, 1973; cited by Groves, 1989; Menard, 2002). Considering that a marriage or cohabitation is likely to be considered an important event in one's life, then despite the long recall period over which some respondents are expected to remember, the recording of this type of event is expected to be quite accurate. However, it might be that information for women who have had a number of previous partnerships is likely to be less accurate than for those with fewer partnerships since for these women there are more dates to remember and potentially the events might have been shorter in duration and perhaps considered less salient. There is no way of measuring the reliability of the partnership history data used in this analysis, yet the finding of a small number of inconsistencies (four cases) between the partnership history data and the individual files (as described in Section 4.3.2) suggests the presence of some error. Given the few cases which this concerned, the salience of the event in question and the small numbers of women that have had many partnerships, the effect of recall error on the analyses undertaken in this study is likely to be negligible.

This chapter has provided an introduction to the data used in this study and a detailed description of the selection of the samples for analysis, the coding of the data and the construction of the final datasets to be analysed in the ensuing chapters. An investigation into the quality of the data, including the level of wave non-response, attrition and missing data across the explanatory variables reveals any loss of data for these reasons is not substantial and thus suggests a high degree of validity in the results obtained. The next chapter will discuss the main methods of analysis that are used to explore this data.

Chapter 5

Methodology

The purpose of this chapter is to describe the main statistical methods that are used throughout this thesis. The first section provides an introduction to and rationale for the use of event history analysis techniques to explore the determinants of the time to repartnering for lone mothers. A justification of the chosen event history analysis approach is provided, after which the data structure required for such analyses is described and the particular models used in the analyses are specified. Further to this, the limitations with the methods are discussed. Finally the modelling procedure for the following analyses is explained.

5.1 Introduction to event history analysis techniques

Event history data are particularly useful to investigate the timing of an event and factors which may be involved in influencing the timing and occurrence of an event. An event history, to put it simply, is a longitudinal record (which can be either collected retrospectively or prospectively) which provides information on the timing of a particular event for a particular group of people along with a number of explanatory variables (Allison, 1984). In this research the event of interest is the repartnering of lone mothers and event history analysis is used to study the duration until the occurrence of this particular event, where duration refers to the time since a woman becomes a lone mother and hence is 'at risk' of repartnering.

An issue with event history data is that it typically includes two features which present problems for conventional statistical analyses, namely censoring and time-varying covariates (Allison, 1984). Censoring refers to the circumstance when the event of

interest does not occur in the study period and all that is known about the duration an individual is at risk for, is that it is larger than the study period. In fact, several types of censoring exist. Firstly a distinction is made between right and left censoring. Right censoring refers to the circumstance when the event occurs after (i.e. 'to the right of') the follow-up period. Left censoring occurs when the start of the 'at risk' period is not observed. Secondly, censoring can be either informative or non-informative depending on whether the censoring mechanism is related to the timing of the event in question. In this study censoring refers to right censoring; left censoring is not a problem due to the method used to select the sample of lone mothers under analysis (see Section 4.3.1). Furthermore, censoring is non-informative, that is to say that the censoring mechanism is assumed to be unrelated to the timing of the event.

The issue of censoring can be dealt with in conventional regression models by using a binary dependent variable indicating the occurrence versus the non-occurrence of the event during a specified time period (Yamaguchi, 1991). However as Yamaguchi (1991) describes, this results in a loss of information since firstly it is not possible to measure any variation in the timing of the event for those who do experience the event, secondly it is not possible to measure the occurrence or timing of the event for those who experience the event after that period and finally any further duration for those who do not experience the event cannot be ascertained. Another issue with this method is with the cut off point selected for the dependent variable, which as Allison (1984) describes, is arbitrarily defined. This can be a serious limitation when there is variation in the effects of the covariates on the hazard over time, in which case altering the study period might significantly change the effects of the covariates on the occurrence versus non-occurrence of the event (Yamaguchi, 1991).

A final issue relates to the inclusion of time-varying covariates (these are covariates which vary over the course of the study period) in standard regression models. One method would be to include dummies for a variable for each time period in which it changes. However, this is inappropriate for a person who experiences the event early on in the study period, since the value of the dummies after they have experienced the event should be irrelevant (Allison, 1984). Another approach would be to include the value of the variable from one point in time (e.g. the start of the observation period), however as Steele (2005) describes, this does not allow any investigation of the

relationship between the timing of an event and any changes in the value of the covariate.

Therefore, although a binary logistic regression could be used to study the occurrence versus non-occurrence of repartnering in a specified period of time, there are serious limitations to this method, as outlined above. Event history analysis is able to address these limitations and is the most appropriate method for analysis in this study.

5.2 Discrete versus continuous time methods

Two broad approaches exist for the analysis of duration data, those which treat time as a continuous variable and those which measure time in discrete (banded) intervals. In reality, although the underlying behavioural processes studied by social scientists generally occur in continuous time, much of the data on these processes is collected via large-scale social surveys and it is commonplace for time spent in a particular state to be measured in the form of discrete units such as months or years (Jenkins, 2004). In actual fact, as highlighted by Allison (1984), time is always measured in discrete units even if these are as small as hours or days. Given this, an important consideration in deciding which method is more appropriate to use is the ratio of the length of the intervals used for grouping to the typical spell length (Jenkins, 2004). As Jenkins (2004) highlights, the smaller this ratio becomes, the more appropriate it is to use a continuous time method.

Another consideration is the number of tied survival times in the dataset, that is, the number of individuals who experience the event at the same time and hence have the same survival time. As highlighted by Yamaguchi (1991), these occur as a result of the time being banded into discrete time intervals and the use of a continuous time method on a dataset which includes a large number of ties may result in serious bias in the parameter estimates. Therefore a distinct advantage of discrete time methods is their ability to cope with these ties. A further advantage of the discrete time method relates to the ease of incorporating time varying covariates in such models, something which is more complicated in continuous time models. Moreover, testing for non-proportionality in the hazards is achieved with greater ease using a discrete-time approach.

As described in Section 4.3.1, it was only possible to measure the duration as a lone mother in terms of completed years in this analysis. Since the number of years spent as a lone mother is relatively small, a large number of tied survival times are present thus inhibiting the use of a continuous time survival model. Further, since a number of time-varying covariates need to be included in the model, it is clearly most appropriate in this analysis to use a discrete-time approach.

5.3 Data structure required for discrete-time event history analysis

In order to carry out discrete time event history analysis a dataset must be reorganised so that for each individual the number of data rows is equal to the number of time intervals an individual is at risk of the event occurring (See Chapter 4 for a description of how the datasets were constructed). As described in Section 4.3.6, a binary dependent variable was created for each of the sub-samples indicating whether or not an individual had repartnered in each of the time periods for which they are at risk. For an individual that is censored, this binary dependent variable is equal to zero for all of their years at risk and for a person who repartners it is equal to zero for each year up until the penultimate year and then equal to one for the final year. In addition to this variable a unique identifier variable is required for each individual as well as a variable identifying the spell year (the time in years since becoming a lone mother). This data structure is known as a person-period file format and an example of such a format can be seen in Figure 5.1 below.

Figure 5.1 Example of a person-period file format

Personal identification variable	Age at becoming a lone mother (years)	Housing tenure	Receipt of Income Support (time-varying covariate)	Time (years since becoming a lone mother)	Event indicator (whether or not a lone mother repartners)
1	18-24	2	1	1	0
1	18-24	2	1	2	0
1	18-24	2	1	3	0
1	18-24	2	1	4	0
1	18-24	2	0	5	0
1	18-24	2	0	6	1
2	35+	1	0	1	0
2	35+	1	1	2	0
2	35+	1	1	3	0
2	35+	1	1	4	0

From Figure 5.1 it can be seen that the first individual is aged between 18 and 24 years at the time that they became a lone mother, rents from a housing association and only receives Income Support for the first four years since becoming a lone mother. It can also be seen that this woman repartners in the sixth year that they are observed. The second person is aged over 35 years, is an owner occupier, does not receive Income Support in the first year, although does for all the other years she is observed, and does not repartner within the four years she is observed.

5.4 The discrete-time hazard model

The discrete-time hazard for a time interval t refers to the conditional probability of the event occurring in the interval t, given that it has not already occurred in a previous time period. Once the data has been reorganised in the manner specified above a standard regression model for a binary response variable can be fitted to estimate this response probability. A commonly used discrete time specification, and the one that is to be used in this analysis, is the logistic hazard model. Using the notation provided by Steele (2005), the model can be written as:

$$\text{logit}(h_{ti}) = \log\left(\frac{h_{ti}}{1 - h_{ti}}\right) = \alpha(t) + \beta' x_{ti} \qquad\qquad 5.1$$

where h_{ti} is the hazard of repartnering for an individual i, at time t with covariates x_{ti} (either fixed or time-varying), $\alpha(t)$ is a function of t, which is referred to as the baseline hazard function and β' the unknown parameters to be estimated. Odds ratios can then be obtained by exponentiating each coefficient β.

The final step before the model can be estimated is choosing the functional form for the baseline hazard, that is, deciding how the hazard rate varies with time. A number of options are available to the analyst as described by Steele (2005), firstly those which parameterise time in some way, such as a linear function $\alpha(t) = \alpha_0 + \alpha_1 t$ where t is included as an explanatory variable or a quadratic function where t and t^2 are included in the model. Alternatively, a fully non-parametric baseline hazard can be specified where duration-interval-specific dummy variables are created, one for each spell year at risk. One can then either enter all the dummies in the model or create an overall intercept term and omit one of the dummies. Another approach would be to group together spell years and assume a constant hazard within each of the defined time segments - called a piecewise constant hazard model. As Steele (2005) describes, the decision over which specification for the baseline hazard is most appropriate to use is generally made after inspection of the overall hazard function (see Section 5.7.1 below for further discussion of how this will be done). To estimate a model using a fully non-parametric baseline hazard it is also crucial to check that there is at least one event in each time interval. If it is found that this is not the case then the grouping of the time segments must be re-defined or the relevant person months must be dropped from the analysis (Jenkins, 2004).

5.5 The competing risks model

As highlighted in Section 1.1, a specific aim of this study is to investigate the different types of partnerships that are formed and determine if particular partnerships are more common for different types of lone mothers. In order to investigate this question a competing risk analysis can be used. This type of analysis allows identification of how

the effects of the explanatory variables differ depending on the type of event that occurs. For example, examining the effect of type of lone mother in the competing risks model will reveal if the effect of this variable is different depending on whether the new partnership is a marriage or a cohabitation.

Instead of the binary response variable indicating repartnering versus staying a lone mother, the response variable now under investigation is categorical and takes account of the different types of partnerships that are formed e.g. whether it is a marriage or a cohabitation. The probability of being either a lone mother, married or cohabiting within each time interval is then estimated using a multinomial logistic hazard model. Using the notation of Steele (2005) as before, the discrete-time multinomial logit model is written as:

$$\log\left(\frac{h_{ti}^{(r)}}{h_{ti}^{(0)}}\right) = \alpha^{(r)}(t) + \beta^{(r)'} x_{ti}^{(r)} \qquad r = 1,\dots,k. \qquad\qquad 5.2$$

where $h_{ti}^{(r)}$ is the hazard of an event of type r occurring at time t for an individual i with covariates $x_{ti}^{(r)}$, $\alpha^{(r)}(t)$ is a function of t for event type r and $\beta^{(r)}$ are unknown parameters. With this model the risk of entering a marriage relative to the risk of staying a lone mother and the risk of entering into a cohabiting union relative to the risk of staying a lone mother are estimated simultaneously.

5.6 Limitations of the methods

5.6.1 Endogeneity

Endogenous variables are those which not only predict the outcome of interest but are also predicted themselves by the outcome measured at an earlier time point (Diggle et al., 2002). Singer and Willett (2003) refer to this scenario as reciprocal causation; whilst it could be concluded that X causes Y, it is also possible that Y causes X. This problem of interpretation particularly applies when time-varying predictor variables are included in the hazard model. When one links contemporaneous values of the time-

varying predictors and outcome variable it becomes impossible to determine the direction of the link (Singer and Willett, 2003).

This problem can be dealt with by creating lagged variables. These are created by recoding the time-varying predictors so that in each time period j the value of the variable reflects its value in the previous time period. This method is employed for the time-varying predictors used in the following analyses presented in Chapters 6, 7, 8 and 9. In Chapter 10 a different kind of analysis is undertaken to that used in the intervening chapters (the methods for which are described in Section 10.2.4). It is acknowledged here, and the reader is reminded in Chapter 10 itself, that endogeneity is a particular problem in these later analyses and the results of the analyses are interpreted with this in mind.

5.6.2 Unobserved heterogeneity

When important predictor variables are left out of a regression model the problem of unobserved heterogeneity arises (Singer and Willett, 2003). Omitting such variables can lead to biased parameter estimates if these unobserved variables are correlated with other covariates in the model (Steele, 2005). Moreover, unobserved heterogeneity affects the shape of the hazard over time. However, the effect of unobserved heterogeneity on the hazard rate is at least consistent, since it will always result in a declining hazard over time (Singer and Willett, 2003). The inclusion in the model of a 'random effect' (commonly known as 'frailty') to represent the unobserved factors that are specific to an individual and fixed over time will allow for unobserved heterogeneity (Steele, 2005). However, such methods often require specialist programs (Steele, 2005) and certainly require additional assumptions about the distribution of unobserved heterogeneity (Jenkins, 2004). Whilst the subsequent models in this study take no specific account of unobserved heterogeneity, it is acknowledged that a steadily declining hazard rate may partially reflect the effects of unobserved heterogeneity.

5.7 Modelling procedure

All analyses detailed below were conducted using Stata Version 9 (StataCorp, 2005).

5.7.1 Life-table analysis

As stated above the functional form for the baseline hazard must be chosen before estimation of the models can proceed. In order to do this it is necessary to investigate the shape of the overall hazard of repartnering in each of the datasets. To do this a life-table analysis was carried out for each sub-sample of lone mothers and plots of the hazard function were obtained and examined. Plots of the survivor function were also inspected and used to obtain an estimate of the median duration of lone motherhood.

5.7.2 Bivariate associations with repartnering

Before proceeding with the multivariate analysis it was necessary to carry out an exploratory analysis of the two sub-samples in order to observe which variables may be important in determining a move into a partnership. Simple event history models containing only a variable to summarise duration dependence (i.e. how the hazard rate varies with time) and one other explanatory variable were used. In order to test the statistical significance of an explanatory variable a Likelihood Ratio test was employed. This is a particularly useful test which can be used to compare nested models (where nested models are those which include the same variables as another model as well as a number of additional variables) and tests the hypothesis that the expected values from the models are identical except for differences due to random variation (Yamaguchi, 1991). If the null hypothesis is true, the test statistic should follow a chi-square distribution with a given number of degrees of freedom (depending on the difference in the number of variables between the two models). This test therefore indicates whether the addition of the extra explanatory variable significantly improves the fit of the model and thus provides some evidence of the statistical importance of each explanatory variable in relation to repartnering.

5.7.3 Multivariate analysis

To select variables into the multivariate models a forwards selection procedure was employed. Beginning with a simple model containing just the variable summarising duration dependence, variables were added step by step according to their significance as tested using a Likelihood Ratio test (as previously described above). In this instance, due to the relatively small sample sizes obtained for analysis the significance level was set at the ten per cent level. To test for non-proportionality in the hazards, i.e. whether the effect of a covariate changes with duration, interactions between the explanatory variables and the function of t were carried out. Finally, interactions between all variables selected into the final model were tested. Again a ten per cent significance level was chosen for the inclusion of any interactions in the model.

Chapter 6

Repartnering among single never-married lone mothers

This chapter investigates the determinants of repartnering for single never-married lone mothers. This sample contains 309 person-years of observations from 95 lone mothers of which 36 are found to form a partnership. In actual fact only just over 15 per cent of the sample had ever had a previous partnership (see Appendix A) and therefore the models below mainly reflect the determinants of partnering for the first time for this group of lone mothers, rather than repartnering. The results of a life-table analysis, conducted to determine the functional form of the baseline hazard during the modelling process, are presented initially. An examination of the individual relationships of each variable with partnering is then provided through the use of simple event history models containing the chosen function of t plus one explanatory variable. Finally, multivariate discrete time event history models constructed using a forwards selection procedure are presented, followed by a discussion of the results found.

6.1 Life-table analysis of partnering for single never-married lone mothers

A simple life-table analysis is useful to investigate the rate of partnering for this sample of lone mothers and allows exploration of how the hazard of partnering varies over time spent as a lone mother. Table 6.1 below shows a life-table for the sample before missing data due to item non-response on the covariates was deleted and Figure 6.1 the plotted survival proportions based on the probabilities in this table. From these it can be

seen that the median duration as a single never-married lone mother (the time by which half of the lone mothers have repartnered) is around five years.

Table 6.1 Life-table estimates of survival probabilities for single never-married lone mothers

Time (years since becoming a lone mother)	Beginning Total	Partner	Lost through attrition	Survival
0-1	95	14	15	0.8526
1-2	66	6	14	0.7751
2-3	46	6	8	0.6740
3-4	32	5	2	0.5687
4-5	25	3	2	0.5005
5-6	20	1	4	0.4754
6-7	15	0	5	0.4754
7-8	10	1	9	0.4279

Figure 6.1 Survival probabilities for single never-married lone mothers
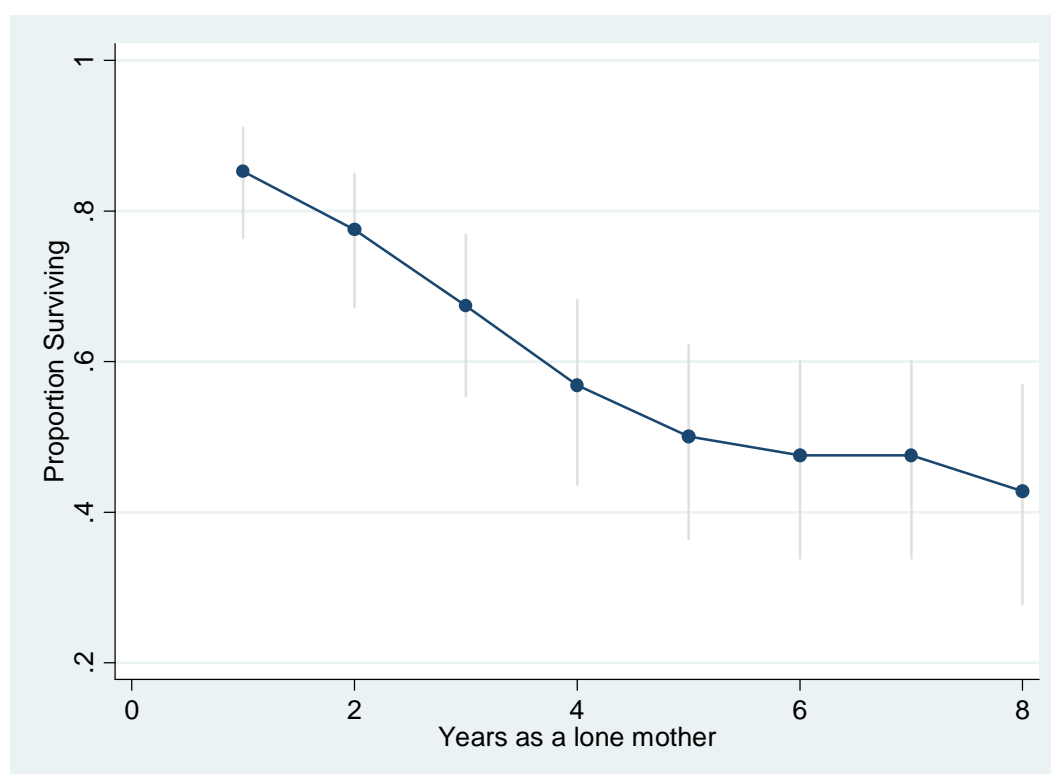
The hazard of partnering in this sample as can be seen plotted in Figure 6.2 below reflects there is no discernable pattern of a decreasing hazard of partnering with time since becoming a lone mother. Despite the conditional probabilities of partnering being lower in the second and third year after entering lone motherhood than in the first year, a jump in the fourth year brings the probability in line with that of the first year and

levels in the fifth year only drop down to the level of the third year again. Furthermore, the large confidence intervals around the estimates reflect the particularly small samples, especially in the later years and suggest the estimates are not well defined.

As a result of this finding, a parametric baseline, which would assume a fixed shape of the overall hazard of partnering, such as the specification of the hazard as a linear function of time, would not seem appropriate. Instead, a better method would be to use a fully non-parametric baseline hazard which does not assume any fixed shape of the hazard over time and would allow it to vary between each different time interval. A necessary constraint of such a model, however, is that events must occur within each of these intervals. From Table 6.1 it is clear that no lone mother in the sample partners in the seventh year since becoming a lone mother. Two options to address this problem are noted by (Jenkins, 2004), which involve either redefining the grouping of the intervals for time, or dropping the person-years in this interval from the estimation. Given the size of the initial sample, the option of dropping person years was less favourable than redefining the grouping of the time dummies. A semi-parametric approach was therefore taken by implementing a piece-wise constant baseline hazard with time grouped into three intervals, – 1-2 years, 3-4 years, 5-6 years and 7-8 years. With such a model, the hazard of partnering is assumed constant within each of the intervals, but constants can differ between intervals.

Figure 6.2 Hazard of partnering over time (single never-married lone mothers)
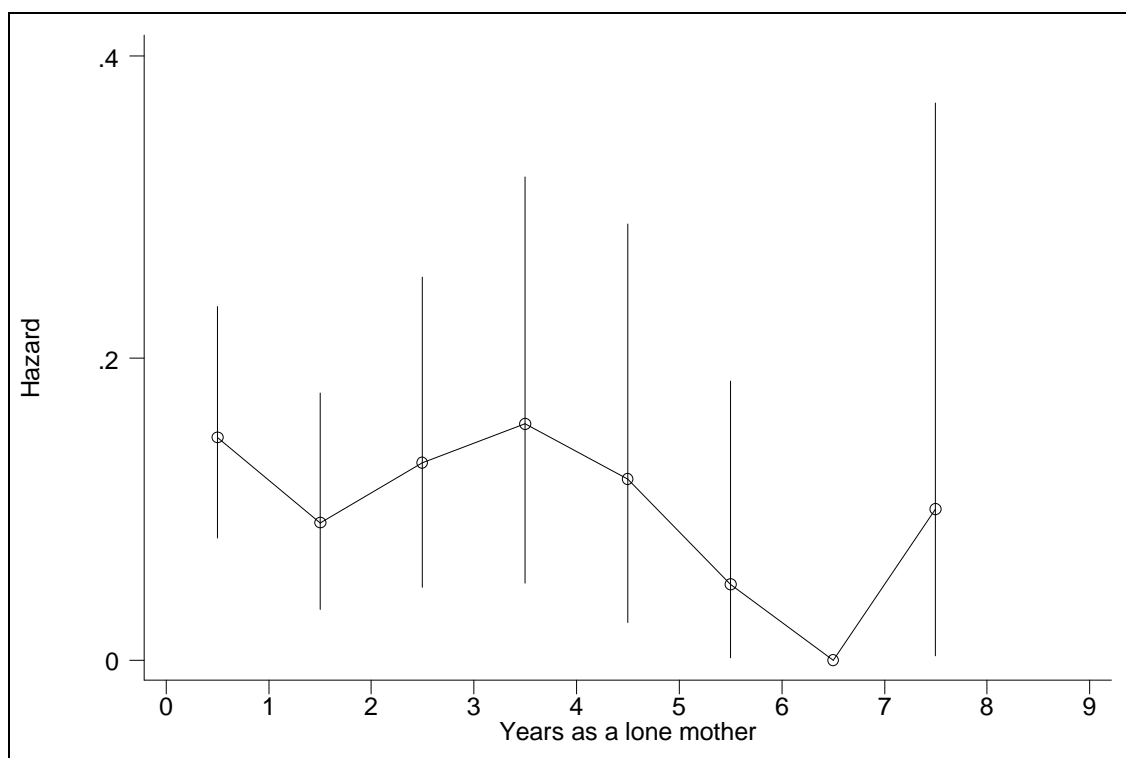
6.2 Bivariate associations of the selected variables with partnering for single never-married lone mothers

A bivariate analysis was carried out using simple event history models including duration dependence summarised using the piece-wise constant specification with survival times split into two year intervals as detailed above, and one of the selected explanatory variables (see Appendix A for the percentage distributions of the covariates). This analysis was conducted on the sample of lone mothers after missing data due to item non-response on the covariates was deleted, resulting in a sample size of 296 person-years of observations (from 89 lone mothers), with 35 partnering overall. This was necessary in order to permit the use of a likelihood ratio test to determine significant relationships between partnering and each explanatory variable. Results of these models can be seen in Tables 6.2-6.5. Asterisks next to the variable name represent the significance of the likelihood ratio test, but the individual p-values associated with each category of the explanatory variables are also displayed.

Table 6.2 shows the associations between the demographic variables and forming a partnership and indicate that there is no relationship between partnering and the age of a lone mother, how many partners she has had prior to becoming a lone mother, or the ethnic group to which she belongs. Bivariate associations carried out with the fixed-time socio-economic variables (Table 6.3) reflect a significant association ($p<0.05$) between partnering and highest academic qualification. The relationship found suggests that those with a CSE as their highest qualification have considerably lower odds of partnering compared to those with none of the listed qualifications. Odds ratios for other categories of this variable are not significantly different from the reference category however and no clear pattern in the odds ratios can be determined across differing academic qualifications.

Table 6.2 Bivariate associations of the fixed time demographic variables with partnering (single never-married lone mothers)

Variable	Odds ratio	S.E.(b)	Significance	95% C.I.
Age (categorised)				
16-19 years (r)	1.00			
20-24 years	1.16	0.488	0.723	0.51-2.65
25-29 years	2.10	1.044	0.134	0.79-5.56
30+ years	0.27	0.281	0.210	0.03-2.11
Number of previous partners				
No previous partner (r)	1.00			
1 partner	0.86	0.491	0.798	0.28-2.63
2 partners	1.45	1.17	0.640	0.30-7.00
Ethnic group membership				
White (r)	1.00			
Other	0.60	0.639	0.632	0.07-4.83

***p-value<0.01 **p-value<0.05 *p-value<0.10

No other significant associations are found between the other socio-economic variables and partnering. This may indicate that there is no relationship between partnering and these variables, or that the sample sizes distributed across the categories are too small and hence there is not enough statistical power to determine any statistically significant relationships.

Table 6.3 Bivariate associations of the fixed time socio-economic variables with partnering (single never-married lone mothers)

Variable	Odds ratio	S.E.(b)	Significance	95% C.I.
Highest Academic qualification**				
Higher degree, teaching qualification, HND/HNC	0.71	0.446	0.582	0.21-2.43
A levels	1.42	0.868	0.568	0.43-4.71
O levels	1.15	0.518	0.761	0.47-2.78
CSE	0.18	0.146	0.033	0.04-0.88
None of these (r)	1.00			
Tenure				
Owner occupier (r)	1.00			
Local authority/Housing Assoc. rented	0.71	0.271	0.374	0.34-1.50
Other rented	0.75	0.503	0.667	0.20-2.79
Social Class				
Professional/Managerial (r)	1.00			
Skilled non-manual	0.78	0.438	0.660	0.26-2.34
Skilled manual	1.26	0.812	0.723	0.35-4.46
Partly skilled/unskilled manual	0.69	0.351	0.468	0.26-1.87
Missing	0.37	0.312	0.238	0.07-1.93
Region				
Southern regions (r)	1.00			
Northern regions	1.25	0.538	0.598	0.54-2.91
Wales/Scotland/N.I.	1.05	0.477	0.922	0.43-2.56
Religion				
No religion (r)	1.00			
C of E/Anglican	1.95	1.00	0.193	0.71-2.34
Roman Catholic	0.98	0.516	0.969	0.35-2.75
Other religion	0.75	0.582	0.707	0.16-3.44
Attendance at religious services				
Once a week or more	2.23	1.661	0.281	0.52-9.60
At least once a month	0.22	0.234	0.154	0.03-1.76
At least once a year	0.75	0.385	0.573	0.27-2.05
Practically never	0.56	0.249	0.193	0.24-1.34
Only weddings/funerals (r)	1.00			

Table 6.4 Bivariate associations of the control covariates and partnering (single never-married lone mothers)

Variable	Odds Ratio	Std. Error	Significance	95% C.I.
Year of entry to lone motherhood				
1992 (r)	1.00			
1993-1994	0.816	0.517	0.748	0.24-2.83
1995-1996	0.359	0.274	0.180	0.08-1.60
1997-1999	0.541	0.364	0.362	0.14-2.02
2000-2003	0.430	0.308	0.239	0.11-1.75
Sample origin				
Original Essex Sample (r)	1.00			
Extension Sample	0.87	0.573	0.836	0.24-3.16

The results reveal that the year of entry into lone motherhood and the sample origin of a lone mother do not appear to be related to partnering with no significant differences in the odds of partnering between different categories of each variable (Table 6.4). Considering year of entry to lone motherhood, there does appear to be some trend in the odds with lower chances of repartnering for those entering lone motherhood more recently, however, this is not statistically significant.

With respect to the time-varying covariates (Table 6.5) both Income Support and financial situation were found to be significantly related to partnering at the one and five per cent level respectively. Considering firstly Income Support, the results indicate that the odds of partnering are 65 per cent lower for those receiving Income Support compared with those not receiving Income Support. The pattern of the odds ratios for the variable measuring self perceived financial situation suggests that those in a more favourable position financially are more likely to repartner than those who are not, although the odds are only statistically significantly different for those who are 'just about getting by' compared with those who are 'finding it quite or very difficult'. For the former group the odds of partnering are nearly four times that of the latter group.

Table 6.5 Bivariate associations of the time-varying covariates and partnering (single never-married lone mothers)

Variable	Odds Ratio	Std. Error	Significance	95% C.I.
Current Employment Status				
Employed (r)	1.00			
Unemployed	0.77	0.541	0.707	0.19-3.05
Family Care	0.43	0.181	0.045	0.19-0.98
Other	0.93	0.508	0.894	0.32-2.72
Income Support*				
Yes	0.35	0.130	0.005	0.17-0.73
No (r)	1.00			
Alimony				
Yes	0.52	0.548	0.534	0.07-4.11
No (r)	1.00			
Housing Benefit				
Yes	0.76	0.317	0.514	0.34-1.72
No (r)	1.00			
Financial Situation**				
Living comfortably/doing alright	2.12	1.262	0.207	0.66-6.81
Just about getting by	3.98	2.30	0.017	1.28-12.36
Finding it quite/very difficult (r)	1.00			
Limiting health				
Yes	0.41	0.311	0.239	0.09-1.81
No (r)	1.00			
GHQ Score				
0-3 (r)	1.00			
4-6	1.50	0.75	0.416	0.56-3.99
7-12	0.82	0.47	0.727	0.27-2.52
Income				
£10,000 or less (r)	1.00			
£10,000.01-£15,000.00	0.54	0.278	0.230	0.20-1.48
£15,000.01-£20,000.00	1.24	0.601	0.658	0.48-3.21
£20,000.01 or more	1.59	0.921	0.424	0.51-4.95
Missing	0.50	0.397	0.383	0.11-2.37
Household type				
Lone parent household (r)	1.00			
Couple or other household	1.78	0.713	0.150	0.81-3.90

Note: Simple event history models include time dummies plus one explanatory variable

***p-value<0.01 **p-value<0.05 **p-value<0.10

Although not statistically significant overall, the relationship found between the employment status of a lone mother and partnering suggests there is a significant difference in the odds of partnering for those in the family care category compared with those who are employed. The odds of partnering for women in this category are 57 per cent lower than the odds for those employed and the p-value relating to this category is significant at the five per cent level. Similarly, the odds of partnering for the other categories compared with the employed category suggest that the women out of work are less likely to partner than women in employment. However, the differences here are not statistically significant and therefore cannot be interpreted with any real certainty.

The bivariate analysis has therefore identified a number of variables that are statistically significant with partnering among this group of lone mothers and which may well be important in predicting a move into a partnership in the multivariate analysis. How these relationships are modified and which variables remain statistically significant predictors of partnering in the presence of other variables will be investigated in the next section.

6.3 Multivariate analysis of the determinants of partnering for single never-married lone mothers

6.3.1 Main effects model

Again, using a discrete time event history model with a piecewise constant baseline hazard with time groups defined as detailed in Section 6.1, a forwards selection procedure was employed in order to select significant explanatory variables into the multivariate model. Due to the small sample size and resulting limited statistical power with which to detect significant associations between partnering and the explanatory variables, a significance level of ten per cent was chosen to determine variables to be included in the model. This approach was implemented on the same sample as that used in the bivariate analysis, with 296 person-year observations and 35 partnering events, in order that a likelihood ratio test could be used to compare nested models. Following this the final selected model was re-fitted onto a sample where listwise deletion was only carried out for the variables included in the final model (including 303 person years from 93 lone mothers, with 36 partnering). Due to the fact that the

coefficients of this model were almost identical to that of the model fitted to the smaller sample and to avoid repetition, only the model using the larger sample is presented in Table 6.6 below.

Table 6.6 Odds ratios from binary logistic hazard model of partnering for single never-married lone mothers

Explanatory variables	Odds ratio	95% C.I.
Time		
0-2 (r)	**1.00**	
2-4	**1.40**	0.57-3.45
4-6	**1.05**	0.29-3.75
6-8	**0.46**	0.05-4.24
Receipt of income support†		
No (r)	**1.00**	
Yes	**0.38****	0.15-0.93
Financial situation†		
Living comfortably/doing alright	**1.40**	0.38-5.13
Just about getting by	**3.78****	1.09-13.03
Finding it quite/very difficult (r)	**1.00**	
Age		
16-19 years (r)	**1.00**	
20-24 years	**0.67**	0.26-1.75
25-29 years	**1.76**	0.50-6.19
30+ years	**0.05****	0.00-0.53
Highest Academic qualification		
Higher degree, teaching qualification, HND/HNC	**1.00**	0.21-4.86
A levels	**1.47**	0.36-5.99
O levels	**1.14**	0.40-3.21
CSE	**0.11****	0.02-0.60
None of these (r)	**1.00**	
Attendance at religious services		
Once a week or more	**1.09**	0.21-5.65
At least once a month	**0.09****	0.01-0.87
At least once a year	**0.22****	0.06-0.76
Practically never	**0.35****	0.13-0.95
Only weddings/funerals (r)	**1.00**	

***p-value<0.01 **p-value<0.05 *p-value<0.10; †Time-varying covariates;
Log-likelihood = -87.595564, person years = 303

From Table 6.6 it can be seen, as was found in the bivariate analysis, that there is no relationship between length of time spent as a lone mother and partnering. Although the odds appear to be lower in the sixth and seventh years since entering lone motherhood, this difference is not statistically significant. This might be as a result of limited statistical power since sample sizes in these later years are particularly small. It may well be that if sample sizes were larger, that a statistically significant reduction in the odds of partnering at later durations might be found. However with the data available from this sample there is no evidence to suggest that duration is at all related with a lone mothers chance of partnering.

As was found in the bivariate analysis, the most important variable for this type of lone mother in relation to partnering, and hence the first variable to be included in the model, was the variable indicating receipt of Income Support. After controlling for other, factors lone mothers in receipt of this benefit, according to the model, have 62 per cent lower odds of partnering compared with those not receiving the benefit and this result is statistically significant at less than the five per cent level.

Self-perceived financial situation is also an important determinant of partnering even after controlling for receipt of Income Support. Those perceiving themselves to be 'just about getting by' have nearly four times the odds of partnering compared with those who were 'finding it quite or very difficult' to get by. The odds ratio for those 'living comfortably' or 'doing alright' compared with those 'finding it quite or very difficult' suggests that again the former have higher odds of partnering compared with the latter, although this difference is not found to be statistically significant.

Despite not being found to be significant in the bivariate analysis, after controlling for Income Support and financial situation, age was found to significantly improve the fit of the model at the ten percent level. From Table 6.6 it can be seen that the odds of partnering for those aged 30 and over are dramatically reduced compared with those aged 16-19 years. Significant at the five per cent level, this odds ratio indicates that women entering lone motherhood via this route, at or after the age of thirty, have 95 per cent lower odds of partnering compared with those entering in their late teenage years. Although the odds ratios in relation to the other categories of this variable are not statistically significantly different from the reference category, the pattern in the odds ratios suggests there might be an increase in the odds of partnering for those in the 25-

29 age group compared with those in the youngest age group, as was observed in the bivariate analysis.

Highest academic qualification is still significant after controlling for other variables in the model and reflects, as in the bivariate analysis, that those with a CSE as their highest qualification have significantly lower odds of partnering compared with those with none of the qualifications listed. The relationship between this variable and partnering is not altered in the multivariate setting, with no clear trend in the pattern of odds ratios over other categories of the variable.

The final variable to be included in the model was that referring to the attendance of a lone mother at religious services or meetings. In this case, the model suggests that those attending at least 'practically never' if not more often have lower odds of partnering compared with those only attending for weddings and/or funerals. The pattern of odds ratios across the different categories suggests that, in the main, the odds of partnering decline as attendance increases. Those attending practically never have a 65 per cent reduction and those attending at least once a month a 91 per cent reduction in the odds of partnering compared with the reference category. No significant difference in odds of partnering is found between those attending at least once a week compared with the reference, however, perhaps as a result of the rather small sample size present in this category (see Appendix A).

6.3.2 Main effects and interactions

Interactions between the time dummies and all the variables were investigated to check for non-proportional hazards, however the small sample sizes across categories led to problems of infinite maximum likelihood in some cells of the interaction. Despite this issue, the p-values associated with other categories which were unaffected by this estimation problem were insignificant, suggesting that the effect of the covariates on partnering is not altered as time spent as a lone mother increases. In addition, interactions between the main effects in the model were also examined, although again problems of infinite maximum likelihood prevailed and as before no statistically significant results were identified. The final best fitting model therefore included just the main effects as shown in Table 6.6.

6.4 Discussion of results

The aim of this chapter was to analyse partnering patterns among the sample of single never-married lone mothers and, in particular, to investigate the determinants of partnering with the objective to establish the relative importance of demographic and socio-economic factors in relation to partnering for this group of mothers. Furthermore, an examination of duration spent as this type of lone mother and how this relates to partnering was undertaken, as well as an analysis of whether the effect of the covariates on partnering is modified by the length of time spent as a single never-married lone mother.

Life-table analysis of the duration of lone motherhood for single never-married lone mothers revealed a median duration of approximately five years which is not dissimilar from other previous studies (Böheim and Ermisch, 1998; McKay, 2003). However, one must be careful when comparing estimates from other studies given the different definitions of 'single' lone mothers in each study. Unlike previous studies (e.g. Ermisch et al., 1990; Ermisch and Wright, 1991; e.g. Böheim and Ermisch, 1998; Payne and Range, 1998; Finlayson et al., 2000), which found evidence of duration dependence (i.e., a reduction in the likelihood of leaving lone motherhood as time spent as a lone mother increases) this study finds no evidence to suggest that this is the case. However, it is acknowledged that this might be a result of the small sample size and hence a lack of statistical power. In addition to this, the effect of the covariates on the likelihood of leaving lone motherhood was not found to change over the length of time spent as a lone mother.

Considering the individual determinants of partnering, previous analysis of repartnering of lone mothers, and even general repartnering have pointed to the undeniably strong negative influence of age. However, interestingly for this sample, it was not age which was found to be the most important factor in relation to partnering, but whether or not a lone mother was in receipt of Income Support. Those mothers receiving this benefit at the beginning of the time interval were significantly less likely to form a partnership over the course of the interval than those not receiving this benefit. This supports the finding of a negative effect of benefit receipt on repartnering of lone mothers (Ford et al., 1998; Finlayson et al., 2000) and from several studies conducted in the U.S and the Netherlands which have analysed repartnering in general (Hutchens, 1979; Mott and

Moore, 1983; De Graaf and Kalmijn, 2003). Furthermore, it provides confirmation of the association between receipt of Income Support and lower odds of repartnering for never-married lone mothers as found by Böheim and Ermish (1998), but which was not well determined in their analysis which was limited to the first five waves of the BHPS.

Despite this, the mechanisms that lie behind this relationship remain unclear. What is known is that upon forming a partnership Income Support payments are likely to be substantially reduced. But, does this knowledge of a reduction in payments result in a lone mother not entering in the search to find a partner in the first place – given that economic resources upon partnering are not necessarily divided equally between members of the partnership and hence a lone mother may end up individually financially worse off? Or is it that she has found a partner, but it is more economically viable for them as a couple to remain in a 'living apart together' relationship rather than residing in the same household? Another point to consider is the attractiveness of such a lone mother, who is on a low income, to a potential new partner.   It might be that the perceived financial costs to the new partner are too much of a burden and reduce the attractiveness of these lone mothers in the partnering market resulting in them being less likely to find a partner.

Whatever the mechanisms that lie behind it may be, this finding highlights the more important influence that economic resources have on partnering for never-married lone mothers, over those demographic characteristics. Further support for this contention is the finding that a lone mother's perception of her financial situation is a more important indicator of partnering than her age. Considering this variable, the findings indicate that it is those lone mothers who are 'just about getting by' who are the most likely to form a partnership. Perhaps, this is the result of a financial incentive to partner for this group of women, who are likely, given their response to the survey question, to welcome the additional financial resources that a new partnership is likely to bring. In line with this, the lower odds found for the most financially secure group is likely to result from the fact that those who consider themselves to be at least 'doing alright', have less economic need to partner. Contrastingly, one might expect the worst off groups to have the most economic need for partnering, however the lower odds for this group in comparison to those 'just about getting by' might stem from the fact that these women are either too concerned with their money worries to be considering taking part in the

search for a new partner, or perhaps are less desirable for future partners in the partnering market as a result of their poor financial status.

Moreover, education, which as previously mentioned might signal potential wage or general career orientation (Mott and Moore, 1983), was also found to be related to partnering for these lone mothers. However, the relationship identified is unclear, with a large decrease in odds noted for those with CSE's compared with no academic qualifications at all, but no other significant differences between groups.

Despite the clear importance of economic resources in relation to partnering for this group of lone mothers as demonstrated above, that is not to say that demographics are not important at all. Age became important in the model after controlling for Income Support and financial situation and, as expected from previous research, is found to be negatively related to partnering, with a large decrease in the odds noted for those aged thirty and over upon entering lone motherhood. A steady decline in the odds of partnering with age is not found however, with an unexpected and somewhat unexplainable increase in odds suggested for those aged 25-29 compared with those aged 16-19 years of age.

Finally, an interesting result and one that has not been examined in relation to partnering of lone mothers previously, was the importance of religion and its effect on partnering for single never-married lone mothers. According to this analysis, the frequency of attendance at religious services or meetings is related to partnering, with a general pattern of decreasing odds of partnering as frequency of attendance increases. This, though, is discounting the group attending most frequently who have insignificantly different odds from those only attending for a wedding or funeral. This perhaps therefore suggests that more religious women are less likely to partner than those with little or no religious affiliation. However, this finding is in contrast to that of De Graaf and Kalmijn (2003) who found a positive effect of increasing church attendance on repartnering after divorce in the Netherlands.

In summary, this chapter has confirmed the average duration of lone motherhood for this group of lone mothers to be around the five year mark. Whilst demographic factors have dominated in past analyses, this analysis suggests that socio-economic factors are more important predictors of a move into a partnership for this type of lone mother,

particularly those relating to the economic resources of such a mother. However, what must be borne in mind when considering these results is the limited sample size available for analysis and hence the lack of statistical power for finding statistically significant results. It may well be that other variables such as employment, social class or housing tenure, which have been found to be related to repartnering in previous research, might be important, but the sample size is too small to determine statistically significant results. Furthermore, the evidence of duration dependence from several previous studies (e.g. Ermisch et al., 1990; Ermisch and Wright, 1991; e.g. Böheim and Ermisch, 1998; Payne and Range, 1998; Finlayson et al., 2000), which is not found in this study, might result from the small sample sizes, particularly at later durations of lone motherhood. The findings from the analysis of repartnering for those becoming a lone mother through the breakdown of a previous partnership, which are to be presented and discussed in the following chapter, might shed light on whether this is likely to be the case, given the relatively larger sample size of this group. Additionally, they will provide an interesting comparison with the results discussed in this chapter.

Chapter 7

Repartnering among women becoming lone mothers through the breakdown of a partnership

This chapter presents the results of the analysis of repartnering among women who had become a lone mother through the breakdown of a marriage or cohabitation. Again, as in the previous chapter, a life-table analysis is conducted initially to investigate the shape of the overall hazard of repartnering and determine how time is going to be treated in the subsequent modelling process. A bivariate analysis ensues with the association between each explanatory variable and repartnering established through the use of simple event history models containing each individual explanatory variable and the chosen function of time. The final section of the chapter presents the results of a multivariate analysis and discusses the findings from the models fitted.

7.1 Life-table analysis of repartnering for those becoming a lone mother through the breakdown of a partnership

In order to investigate the rate of repartnering for this sample of lone mothers and allow exploration of how the hazard of repartnering varies over time spent as a lone mother it is necessary once again to conduct a life-table analysis. Table 7.1 below shows a life-table for the sample before missing data due to item non-response on the covariates was deleted and Figure 7.1 the plotted survival proportions based on the probabilities in this table. From these it can be seen that, as for the single never-married lone mothers, the estimated median duration as a lone mother is just over five years.

Table 7.1 Life-table estimates of survival probabilities for those becoming a lone mother through the breakdown of a partnership

Time (years since becoming a lone mother)	Beginning Total	Repartner	Lost (lost due to children growing up)	Survival
0-1	447	73	80 (16)	0.8367
1-2	294	38	60 (13)	0.7285
2-3	196	29	24 (8)	0.6208
3-4	143	14	32 (4)	0.5600
4-5	97	10	16 (4)	0.5022
5-6	71	9	16 (6)	0.4386
6-7	46	4	13 (5)	0.4004
7-8	29	4	2 (1)	0.3452
8-9	23	1	22 (3)	0.3302

Figure 7.1 Survival probabilities for those becoming a lone mother through the breakdown of a partnership
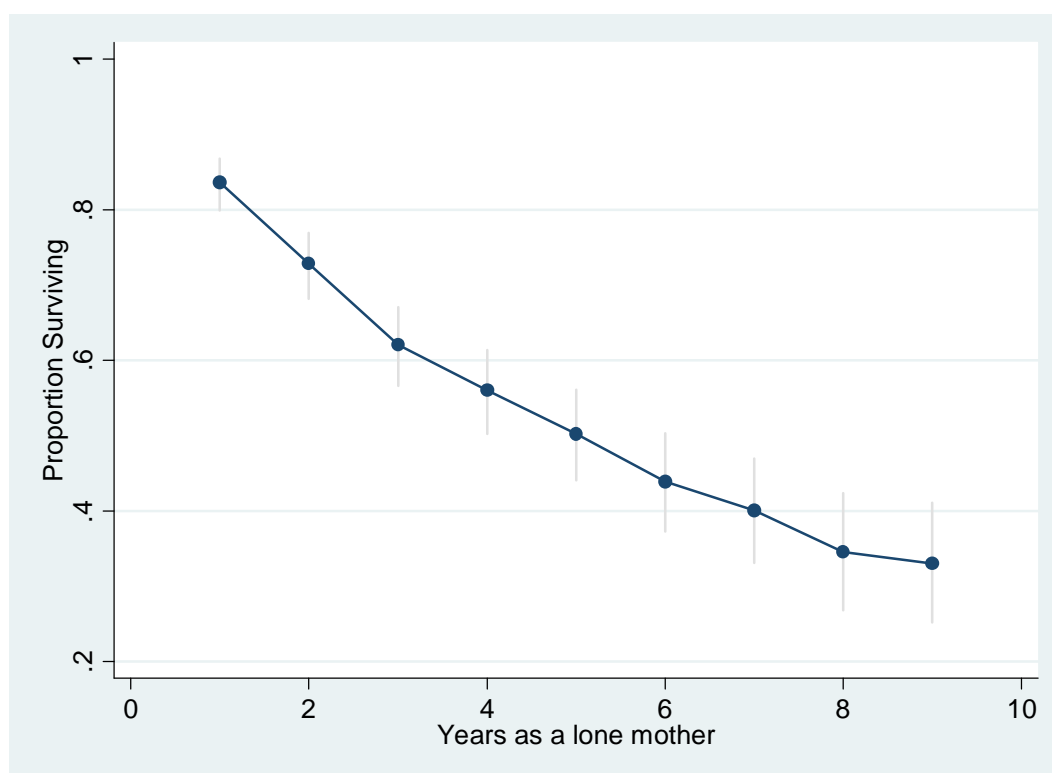
From a plot of the hazard of repartnering (Figure 7.2 below) it can be seen that the general trend in the hazard of repartnering is a decline as length of time as a lone mother increases. The large confidence intervals around these estimated probabilities (shown by the vertical lines) reflect the small sample sizes, particularly at later durations. Although these large confidence intervals suggest that these estimates are not particularly well defined, there is perhaps a tentative suggestion of a linear decrease in

the hazard over time, something that will be considered and tested later in the multivariate analysis.

Figure 7.2 Hazard of repartnering over time (those becoming a lone mother through the breakdown of a partnership)
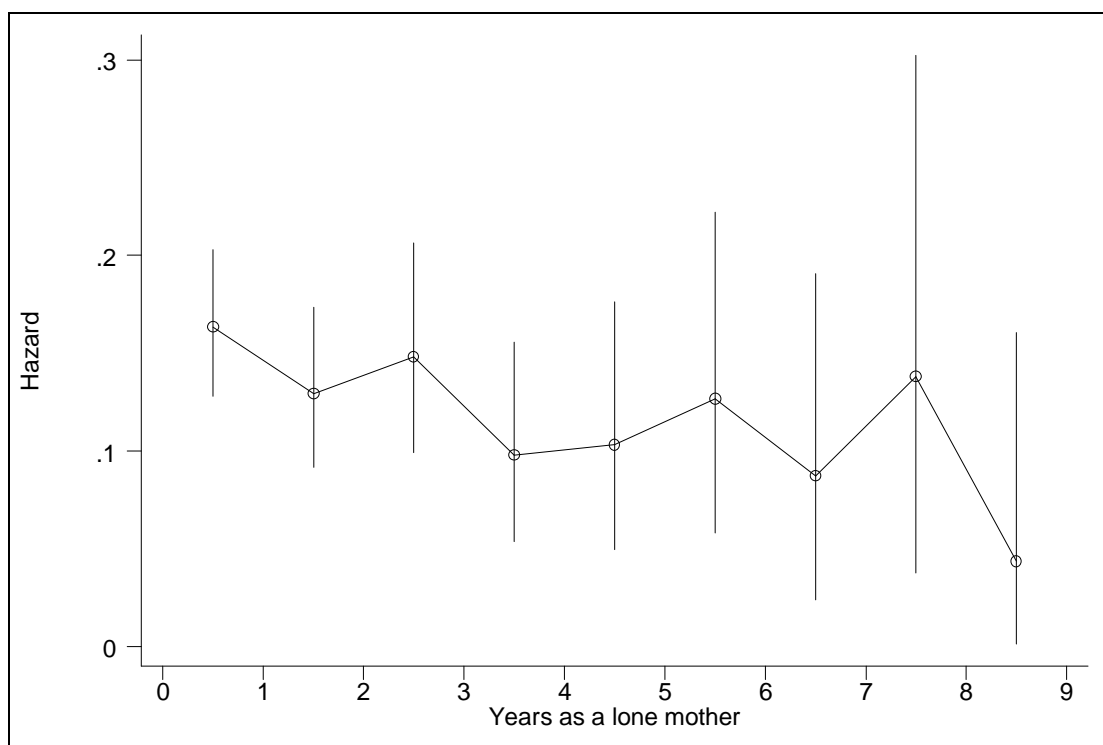
Although plots of hazard probabilities of repartnering are useful for determining the shape of the underlying hazard of repartnering, they do not take account of the fact that the shape of this hazard may change after controlling for other variables. Simply controlling for age as shown in Figure 7.3 below indicates that the hazard of repartnering for those aged 18-24 is higher than the hazard for those aged 30-34 and 35+ years. From the graphs it appears that this is a level shift however, suggesting that the relationship between age and repartnering is not modified by the length of time they remain a lone mother.

Figure 7.3 Hazard of repartnering over time by age group of the lone mother (those becoming a lone mother through the breakdown of a partnership)
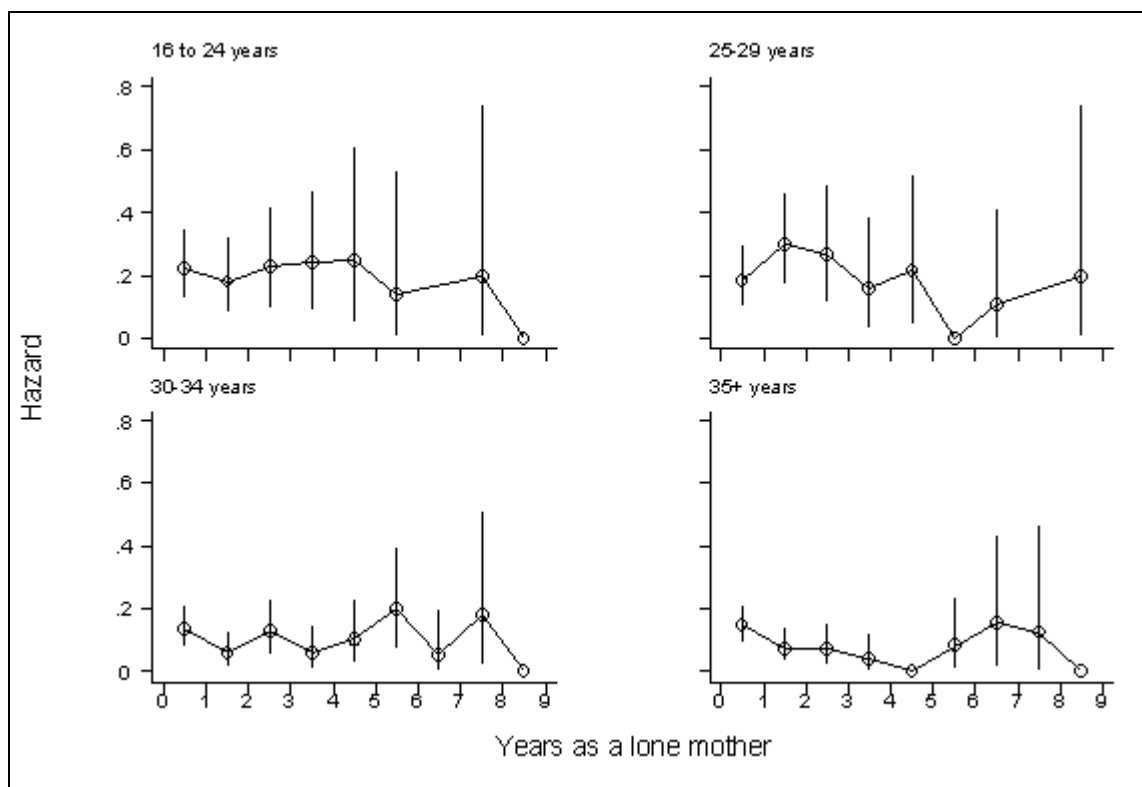
Considering the findings above, the bivariate analysis below proceeds with a fully non-parametric baseline hazard with the use of dummy variables to indicate the length of time spent as a lone mother in the models. Later, in the multivariate analysis, the final model is re-fitted using a parametric baseline hazard assuming a linear relationship between repartnering and time spent as a lone mother and the findings of this analysis are discussed.

7.2 Bivariate associations of the selected variables with repartnering for those becoming a lone mother through the breakdown of a partnership

In order for it to be possible to use likelihood ratio tests to determine the statistical significance of the relationship between each explanatory variable (see Appendix B for the percentage distributions of the explanatory variables) and repartnering, the bivariate analysis was carried out on the sample of lone mothers where missing data on

covariates was dealt with using a process of listwise deletion. The resulting sample size was 1,298 person years (representing 426 lone mothers) with 174 found to repartner over the observation period.

Table 7.2 Bivariate associations of the fixed time demographic variables with repartnering (those becoming a lone mother through the breakdown of a partnership)

Variable	Odds ratio	S.E.(b)	Significance	95% C.I.
Age (categorised) *				
18-24 years	1.00			
25-29 years	1.04	0.251	0.863	0.65-1.67
30-34 years	0.47	0.111	0.002	0.30-0.75
35+ years	0.39	0.091	0.000	0.25-0.62
Number of children *				
One child (r)	1.00			
Two children	0.67	0.124	0.031	0.47-0.96
Three or more children	1.02	0.228	0.925	0.66-1.58
Age of youngest child *				
Under 5 years (r)	1.00			
5 to 11 years	0.60	0.109	0.005	0.42-0.86
12 to 15 years	0.46	0.163	0.028	0.23-0.92
Type of lone mother				
Previously married (r)	1.00			
Previously cohabiting	1.17	0.198	0.369	0.83-1.63
Number of previous partners				
1 partner (r)	1.00			
2 partners	1.12	0.228	0.567	0.75-1.67
3 or more partners	1.42	0.479	0.295	0.74-2.75
Previous union duration **				
Less than 5 years (r)	1.00			
5 to 9 years	1.12	0.255	0.624	0.72-1.75
10 to 14 years	0.81	0.210	0.416	0.49-1.35
15+ years	0.55	0.141	0.019	0.33-0.91
Ethnic group membership				
White (r)	1.00			
Other	0.87	0.472	0.798	0.30-2.52

***p-value<0.01 **p-value<0.05 *p-value<0.10 P-values relate to the results of the likelihood ratio test and thus determine the significance of the variable overall with repartnering

Table 7.2 above shows the results of the event history analyses where, for each model, dummy variables were included for time and one explanatory variable was included in

addition to these dummies. This analysis shows a lone mother's age at the time of becoming a lone mother to be highly significant (p-value<0.001) with repartnering for this group of lone mothers. Although no statistical difference in the odds of repartnering is found between the two youngest age groups, there is a significant reduction in the odds of repartnering for those aged 30-34 and aged 35+ compared with those aged 18-24. The odds ratios for these last two age groups are not statistically different from each other however, with a reduction in the odds of 53 per cent and 61 per cent respectively, compared with the reference group.

The number of children a lone mother has is significantly associated with the likelihood of repartnering at the ten per cent level of significance. The model indicates that in any year those with two children have 33 per cent lower odds of repartnering compared with those with only one child, but there is no statistically significant difference between the likelihood of repartnering for those with three or more children compared to those with only one child.

The age of the youngest child is significantly associated with repartnering (p-value<0.01) and suggests that lone mothers with younger children upon entering lone motherhood are more likely to repartner than those with older children. In fact, those with a youngest child between the ages of 12 and 15 have over 50 per cent lower odds of repartnering than those with children aged less than 5 years old. However age of youngest child is closely related to the age of a lone mother and therefore it is unclear whether this association is merely a reflection of this. In the multivariate analysis it may not remain statistically significant.

The type of union which broke down is not found to be significantly associated with repartnering and neither is the number of previous partners that a woman has had. Considering the odds ratios for these two variables, there is some suggestion though that those who broke up from a cohabitation might be slightly more likely to repartner than those who broke up from a marriage, and that those who have had a higher number of previous partners are more likely to repartner than those with fewer numbers of previous partners. In contrast with the number of previous partnerships, the duration of the most recent previous partnership is significant at the five per cent level. The model suggests that those with a previous union duration of at least 15 years have 45 per cent lower odds of repartnering compared with those with a previous union duration of less

than 5 years. As for age of youngest child, union duration is likely to be associated with age and so this bivariate association may be attenuated in the multivariate analysis.

Finally, ethnic group is not significantly associated with repartnering, despite suggested lower odds of repartnering for those belonging to other ethnic groups compared with those who are white. This may perhaps be due to the small number of lone mothers that are from other ethnic groups in this analysis (see Appendix B).

Bivariate associations between the fixed time socio-economic variables and repartnering were also carried out, the results of which can be seen in Table 7.3. In this group of variables significant associations were only found for social class and religion. However two categories of the highest academic qualification variable were found to be statistically significant.

Considering firstly highest academic qualification, although this variable is not statistically significant with repartnering risk overall, there is some indication that the odds of repartnering in any year are higher for those with fewer academic qualifications. In fact it can be seen that the odds of repartnering for those with CSE's compared with those with a higher degree or other such qualifications are 84 per cent higher and this difference is significant at the ten per cent level. Furthermore, those with no academic qualifications at all have over two times the odds of repartnering compared with those who have a higher degree or other higher qualification and this is significant at the five per cent level.

Social class has a significant association with repartnering at the ten per cent level, with those in skilled manual or partly skilled/unskilled manual occupations having significantly higher odds (2.20 and 1.83 times the odds respectively) of repartnering compared with those in professional/managerial occupations. There is no significant difference between those in skilled non-manual occupations or those in the missing category (of which the majority have never had a job) compared with those in professional/managerial occupations however. Social class, like education, is also associated with age however, with higher proportions of younger ages in the lower social classes and therefore the relationship found here is likely to be altered after controlling for age in the multivariate analysis.

Table 7.3 Bivariate associations of the fixed time socio-economic variables with repartnering (those becoming a lone mother through the breakdown of a partnership)

Variable	Odds ratio	S.E.(b)	Significance	95% C.I.
Highest Academic qualification				
Higher degree, teaching qualification, HND/HNC (r)	1.00			
A levels	1.22	0.438	0.589	0.60-2.46
O levels	1.65	0.525	0.112	0.89-3.08
CSE	1.84	0.656	0.086	0.92-3.70
None of these	2.16	0.764	0.029	1.08-4.32
Tenure				
Owner occupier (r)	1.00			
Local authority/Housing Assoc. rented	1.15	0.209	0.436	0.81-1.65
Other rented	1.14	0.261	0.570	0.73-1.78
Social Class *				
Professional/Managerial (r)	1.00			
Skilled non-manual	1.42	0.356	0.160	0.87-2.32
Skilled manual	2.20	0.647	0.008	1.23-3.91
Partly skilled/unskilled manual	1.83	0.454	0.014	1.13-2.98
Missing	1.59	0.688	0.288	0.68-3.71
Region				
Southern regions (r)	1.00			
Northern regions	0.96	1.178	0.842	0.67-1.39
Wales/Scotland/N.I.	0.74	0.166	0.184	0.48-1.15
Religion *				
No religion (r)	1.00			
C of E/Anglican	0.84	0.161	0.369	0.58-1.22
Roman Catholic	0.89	0.268	0.696	0.49-1.60
Other religion	0.43	0.130	0.005	0.24-0.78
Attendance at religious services				
Once a week or more (r)	1.00			
At least once a month	1.17	0.517	0.715	0.50-2.78
At least once a year	0.89	0.357	0.771	0.41-1.95
Practically never	1.26	0.469	0.537	0.61-2.61
Only weddings/funerals	1.64	0.585	0.167	0.81-3.30

Note: Simple event history models including the time dummies plus one explanatory variable for all available cases.
***p-value<0.01 **p-value<0.05 *p-value<0.10

Finally religion is significant at the five per cent level, although only those in the 'other' category have a significant difference in the odds of repartnering. This category includes high proportions of those belonging to the Church of Scotland and to other

Christian groups. For this group the odds are nearly 60 per cent lower compared with those not belonging to any religious group.

Table 7.4 Bivariate associations of the control covariates and repartnering (those becoming a lone mother through the breakdown of a partnership)

Variable	Odds ratio	S.E.(b)	Significance	95% C.I.
Year of entry to lone motherhood				
1992 (r)	1.00			
1993-1994	1.19	0.389	0.587	0.63-2.26
1995-1996	1.10	0.363	0.773	0.58-2.10
1997-1999	1.12	0.345	0.725	0.61-2.05
2000-2003	0.98	0.313	0.944	0.52-1.83
Sample origin				
Original Essex Sample (r)	1.00			
Extension Sample	0.78	0.206	0.338	0.46-1.30

Note: Simple event history models including the time dummies plus one explanatory variable for all available cases.
***p-value<0.01 **p-value<0.05 *p-value<0.10

Simple event history models including the variables controlling for the year of entry into lone motherhood and the sample origin of the respondent (Table 7.4 above) reveal that there is no statistically significant association between these variables and repartnering.

Table 7.5 shows associations between the time-varying covariates and repartnering. The results suggest that employment status is not related to repartnering and neither of the variables measuring receipt of Income Support or Housing Benefit is found to be either. The variable measuring receipt of alimony or maintenance is statistically significant at the five per cent level however. The odds of repartnering in any year for those in receipt of alimony or maintenance at the beginning of that year are over 30 per cent lower than those not receiving this kind of benefit.

Table 7.5 Bivariate associations of the time-varying covariates and repartnering (those becoming a lone mother through the breakdown of a partnership)

Variable	Odds Ratio	Std. Error	Significance	95% C.I.
Current Employment Status				
Employed (r)	1.00			
Unemployed	0.54	0.260	0.201	0.21-1.39
Family Care	0.94	0.170	0.722	0.66-1.434
Other	1.26	0.407	0.475	0.67-2.37
Income Support				
Yes	1.12	0.186	0.483	0.81-1.56
No (r)	1.00			
Alimony **				
Yes	0.66	0.128	0.038	0.46-0.98
No (r)	1.00			
Housing Benefit				
Yes	1.00	0.186	0.984	0.70-1.44
No (r)	1.00			
Financial Situation				
Living comfortably (r)	1.00			
Doing alright	0.91	0.283	0.766	0.50-1.67
Just about getting by	0.85	0.251	0.588	0.48-1.52
Finding it quite difficult	0.74	0.255	0.381	0.38-1.45
Finding it very difficult	1.12	0.411	0.752	0.55-2.30
Limiting Health				
Yes	0.85	0.216	0.520	0.52-1.40
No (r)	1.00			
GHQ score **				
GHQ 0-3	1.00			
GHQ 4-6	1.60	0.341	0.026	1.06-2.43
GHQ 7-12	0.77	0.171	0.238	0.50-1.19
Annual income				
£5,000.00 or less	1.00			
£5,000.01- £10,000.00	2.18	0.83	0.039	1.04-4.58
£10,000.01- £15,000.00	1.53	0.60	0.278	0.71-3.30
£15,000.01- £20,000.00	2.04	0.83	0.080	0.92-4.53
£20,000.01 or more	1.89	0.82	0.142	0.81-4.40
Missing	2.46	1.22	0.070	0.93-6.53
Household type				
Lone parent household	1.00			
Couple or other household	1.42	0.571	0.381	0.65-3.12

***p-value<0.01 **p-value<0.05 **p-value<0.10

Neither of the two variables relating to the income of a lone mother is found to be related to repartnering, although the pattern of the odds ratios for the variable measuring self-perceived financial situation (discounting the last category) suggests that there might be lower odds of repartnering for those having financial difficulties compared with those who consider themselves to be living comfortably. Considering income, despite some significant differences in the odds of repartnering between certain categories of the variable there is no apparent trend in the odds ratios at all.

Two variables were used to assess the effect of health on repartnering – the presence of a limiting health condition and the level of psychiatric disturbance determined by the score corresponding to a lone mother's answers to the General Health Questionnaire (GHQ). The GHQ is one of the most extensively used screening instruments for psychiatric morbidity (Bowling, 2005). Following the approach of Pevelin and Ermisch (2004), the GHQ scores were converted to a 12-point scale which was collapsed into three categories. As in their analyses, scores between 0 and 3 formed the first category, with scores above the threshold of 4+ forming two further categories corresponding to the scores of 4-6 and 7-12. The results from the bivariate analysis indicate that there is no significant association between whether or not a lone mother has a limiting health condition and repartnering. However, GHQ score is significant at the five per cent level. The relationship found between this variable and repartnering indicates that those with a mental health score of 4-6 are significantly less likely to repartner than those with a mental health score of 0-3, however for those with the poorest mental health score (between 7 and 12) there is no significant difference between the odds.

Finally, examining the type of household a lone mother was found to be living in it can be seen that there is no significant difference in the odds of repartnering for those living in a couple or other household compared to living in a lone parent household. This might be a result of the fact that less than four per cent of lone mothers were actually living in a couple or other type of household over the expanded dataset (corresponding to less than 10 per cent of lone mothers in any year).

To summarise, a number of demographic and socio-economic variables have been found to be individually related to repartnering for this type of lone mother. The subject of the next section is to investigate the relative importance of covariates with respect to repartnering in the presence of other variables through the use of a multivariate model.

7.3 Multivariate analysis of the determinants of repartnering for those becoming a lone mother through the breakdown of a partnership

Using a forwards selection procedure, as outlined in Section 5.7.3, with a significance level set at the ten per cent level, significant variables were selected for inclusion in the models. Several final models were produced which included different sub-sets of variables as a result of missing data on particular covariates (see Section 4.5.3) or a different functional form for the baseline hazard following the results of the bivariate analysis and the suggested relationship between time and repartnering. It should be noted that the modelling selection procedure for identifying significant main effects was carried out on the sample where listwise deletion had been implemented to take account of missing data on covariates. This was necessary in order for it to be possible to carry out the likelihood ratio test to compare the nested models. However, the resulting final models were then implemented on a larger sample for which only missing data for the covariates actually found to be significant in the model was deleted. The coefficients of these initial models were very similar to those obtained after the model was re-fitted to the larger sample and hence to avoid repetition only the final models based on this larger sample have been reproduced in Table 7.6 below.

7.3.1 Results of the multivariate model with a fully non-parametric baseline hazard

Considering model one, which uses a fully non-parametric baseline hazard it can be seen that there is perhaps some suggestion that the hazard of repartnering decreases over time after controlling for other variables, albeit not a statistically significant decrease. Initially only main effects were tested for inclusion in the model and a number of the variables previously found to be associated with repartnering in the bivariate analysis were still significantly associated with repartnering after controlling for other variables (Model 1, Table 7.6 below).

Table 7.6 Odds ratios for discrete time event history models predicting repartnering for those becoming a lone mother through the breakdown of a partnership

Explanatory variables	Model 1 (non-parametric time)		Model 2 (linear time)	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Time				
0-1 (r)	1.00			
1-2	0.75	0.49-1.17		
2-3	0.92	0.57-1.51		
3-4	0.59*	0.31-1.10		
4-5	0.65	0.31-1.35		
5-6	0.84	0.39-1.83		
6-7	0.54	0.18-1.60		
7-8	0.70	0.20-2.44		
8-9	0.28	0.04-2.17		
Time (linear)			0.92*	0.84-1.01
Age				
18-24 (r)	1.00		1.00	
25-29	0.95	0.57-1.57	0.95	0.58-1.57
30-34	0.37***	0.22-0.62	0.37***	0.22-0.63
35+ years	0.31***	0.18-0.54	0.32***	0.19-0.54
GHQ score†				
GHQ 1-3 (r)	1.00		1.00	
GHQ 4-6	1.60**	1.04-2.45	1.63**	1.06-2.50
GHQ 7-12	0.80	0.51-1.25	0.81	0.52-1.26
Number of children				
One child (r)	1.00		1.00	
Two children	0.69*	0.47-1.00	0.69*	0.47-1.00
Three or more children	1.40	0.86-2.29	1.40	0.86-2.27
Religion				
No religion (r)	1.00		1.00	
Church of England	0.87	0.59-1.29	0.87	0.59-1.29
Roman Catholic	0.83	0.46-1.51	0.83	0.46-1.51
Other religion	0.43***	0.24-0.80	0.43**	0.24-0.80
Type of lone mother				
Previously married (r)	1.00		1.00	
Previously cohabiting	0.71	0.47-1.07	0.71	0.47-1.07
Employment Status†				
Employed (r)	1.00		1.00	
Unemployed	0.47*	0.19-1.14	0.46*	0.19-1.13
Family Care	0.77	0.52-1.12	0.77	0.53-1.13
Other	1.10	0.56-2.15	1.09	0.56-2.12

***p-value<0.01 **p-value<0.05 *p-value<0.10; †Time-varying covariates; Model 1: log likelihood = -488.8171, person-years = 1315; Model 2: log likelihood = -490.38627, person-years = 1315.

Despite the age of the youngest child being significantly associated with repartnering in the bivariate analysis, it became insignificant once the age of the lone mother was controlled. Social class and receipt of alimony or maintenance, two other covariates which were found to be significant in the bivariate analysis, were also not found to be significant after controlling for the age of the lone mother.

Considering the final chosen model, the most significant variable and therefore the first explanatory variable to be included in the model was age at the time of becoming a lone mother. As was indicated by the bivariate analysis a negative effect of increasing age on repartnering is found. Again, although no statistically significant difference is found between the odds of repartnering for those aged 25-29 compared with those aged 18-24, the odds for those in the two oldest age groups are significantly lower than the odds for the youngest age group. The highly significant p-value (p-value<0.001) and the small confidence intervals surrounding these estimates reflect the strength of this association. The overlapping of the confidence intervals for the different categories reflect, however, that the odds of repartnering for the two oldest age categories are not statistically significantly different from each other.

GHQ score was the next variable to be included in the model and suggests, again as in the bivariate analysis, that the odds of repartnering for those with a score of 4-6 are over one and a half times the odds of repartnering for those with a score of 0-3. No statistical difference in the odds of repartnering is noted between lone mothers with the poorest mental health scores (7-12) and those in the 0-3 category.

Even after controlling for age of the lone mother, the number of children she had upon entering lone motherhood was statistically significant in the multivariate model. The model suggests that having two children significantly reduces the odds of repartnering by 31 per cent compared with only having one child, although no statistical difference in the odds of repartnering between those with three or more children compared with those with only one child is observed.

Another variable to be included in the model was the variable measuring the religious group to which a lone mother belonged. Whilst no statistical differences in the odds of repartnering for those belonging to the Church of England or Roman Catholic faith compared with those belonging to no religious group were observed, those in the 'other'

religious group had significantly lower odds of repartnering compared with the reference category. As was found in the bivariate analysis, the model suggests that the odds of repartnering are nearly 60 per cent lower for this group, which mainly contains those belonging to the Church of Scotland and other Christian groups, compared with those having no religious faith.

Controlling for the type of lone mother improved the fit of the model at the ten per cent level according to the likelihood ratio test, however the odds ratio for those separated from a cohabiting relationship compared with those separated from a marriage was significant at just over the ten per cent level (p=0.104). The size of the odds ratio and its proximity to achieving significance suggests that there might be some reduction in the odds of repartnering for the former group of lone mothers. Given that type of lone mother is likely to be associated with age, with those who have broken up from a cohabitation being found to be generally younger than those who have broken up from a marriage then the direction of this relationship is quite surprising considering the relationship already found between age and repartnering. Interestingly, this variable was not found to be statistically significant in the bivariate analysis and is only significant in the presence of age indicating that it explains additional variation that cannot be explained by age.

Type of lone mother is also likely to be related to number of children, which itself is also related to age. Due to these interrelationships each of the three variables were in turn removed from the model to investigate whether any change occurred in the coefficients for the other related variables. In fact, the model remained stable despite these changes. Furthermore, interactions between these variables did not statistically improve the fit of the model when they were each tested in the final model.

The final variable to be included in the model was employment status. The model suggests that those who are unemployed have just over 50 per cent lower odds of repartnering compared with those who are employed and this is significant at the ten per cent level. The pattern of odds ratios across categories suggests that those in the family care category might have lower odds of repartnering compared with those who are employed, although this is not statistically significant. Examining the numbers of women in the sample that are in the unemployed category (see Appendix B) it can be seen that the sample size for this category is relatively small compared with other

categories. If the sample size of this category was increased then it might be that the statistical significance of the difference in odds between categories might be increased.

7.3.2 Testing for interactions in the final multivariate model

In order to investigate for non-proportionality in the hazards of repartnering, that is whether the relationship between any of the variables and repartnering was modified by time spent as a lone mother, interactions between time (grouped) and the other explanatory variables were examined. No significant results were identified suggesting that the effects of the covariates on repartnering did not change over the length of time a woman remained a lone mother.

Previous research into repartnering of lone mothers highlighted particular variables which are likely to be interrelated with each other and suggested certain interactions between main effects to be tested for in the model, namely all those between age, number of children and type of lone mother. As previously described above, these were tested in the model (on the sample only containing missing data on covariates included in the final model) but no statistically significant improvements to the model were noted after the addition of such variables. In addition to these interactions, all interactions between other main effects in the model as well as any variables which were significant at the ten per cent level at the end of the modelling process were tested, but again no significant interactions were found even at the ten per cent significance level. As a result of the fact that no significant interactions were found between any variables, the final chosen model included only those main effects described above.

7.3.3 Results of the multivariate model with a parametric baseline hazard

The bivariate analysis provided some indication of a reduction in the odds of repartnering with increasing length of time spent as a lone mother and the plot of the hazard of repartnering for the sample suggested this relationship may be linear. Model 2 therefore uses a parametric baseline hazard with time assumed to be linearly associated with repartnering to investigate this suggestion. From Table 7.6 it can be seen that there is almost no change in the odds ratios of the explanatory covariates between this model and the model before with a non-parametric baseline hazard. This model indicates, however, that there is only a small linear reduction in the odds of

repartnering with each additional year spent as a lone mother and this is only significant at the ten per cent level.

7.3.4 Results of the multivariate model including the partnership history variables

The relatively large amount of missing data on the variables relating to a woman's partnership history meant that it was necessary to test for the significance of these variables on a smaller sample of women for which information on these variables could be obtained. In order to ensure that this sub-sample was not dissimilar from the overall sample, the model with a fully non-parametric baseline hazard and including all significant main effects (Model 1 in Table 7.6) is fitted to this sub-sample and can be seen in Table 7.7 (Model 3). Although differences in the magnitude of the odds ratios can be noted, the differences are slight and more importantly the direction of the relationship between each of the variables and repartnering remains unchanged. It is therefore considered acceptable to compare the model including the partnership variables (Model 4, Table 7.7) with the model without these, but with the larger sample (Model 1, Table 7.6).

Table 7.7 Odds ratios for models using the sample with information on the partnership history variables (for those becoming a lone mother through the breakdown of a partnership)

Explanatory variables	Model 3 (original main effects)		Model 4 (inclusion of partnership history variables)	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Time				
1 (r)	**1.00**		**1.00**	
2	**0.72**	0.44-1.18	**0.73**	0.45-1.19
3	**0.71**	0.40-1.25	**0.72**	0.41-1.27
4	**0.57**	0.29-1.13	**0.57**	0.29-1.14
5	**0.49**	0.21-1.14	**0.51**	0.22-1.21
6	**0.69**	0.29-1.64	**0.71**	0.30-1.70
7	**0.59**	0.20-1.75	**0.59**	0.20-1.78
8	**0.73**	0.21-2.60	**0.74**	0.21-2.66
9	**0.29**	0.04-2.25	**0.30**	0.04-2.38
Age				
18-24 years (r)	**1.00**		**1.00**	
25-29 years	**0.83**	0.45-1.52	**0.64**	0.33-1.22
30-34 years	**0.29***	0.16-0.53	**0.20***	0.10-0.41
35+ years	**0.27***	0.15-0.50	**0.22***	0.10-0.49
GHQ Score				
GHQ 1-3 (r)	**1.00**		**1.00**	
GHQ 4-6	**1.72**	1.08-2.74	**1.75**	1.09-2.80
GHQ 7-12	**0.78**	0.47-1.28	**0.76**	0.46-1.25
Number of children				
One child (r)	**1.00**		**1.00**	
Two children	**0.65**	0.42-0.99	**0.61**	0.39-0.94
Three or more children	**1.29**	0.75-2.21	**1.28**	0.73-2.25
Religion				
No religion (r)	**1.00**		**1.00**	
Church of England	**0.77**	0.50-1.18	**0.82**	0.53-1.27
Roman Catholic	**0.91**	0.47-1.75	**1.12**	0.57-2.21
Other religion	**0.41***	0.22-0.78	**0.43**	0.22-0.82
Type of lone mother				
Previously married (r)	**1.00**		**1.00**	
Previously cohabiting	**0.60**	0.37-0.97	**0.58**	0.35-0.98
Employment Status				
Employed (r)	**1.00**		**1.00**	
Unemployed	**0.64**	0.25-1.60	**0.64**	0.25-1.62
Family Care	**0.73**	0.47-1.12	**0.73**	0.47-1.13
Other	**1.07**	0.50-2.31	**1.03**	0.47-2.23
Number of previous partners				
1 partnership (r)			**1.00**	
2 partnerships			**1.34**	0.84-2.12
3 or more partnerships			**2.24***	0.99-5.08
Duration of most recent previous partnership				
Less than 5 years (r)			**1.00**	
5-9 years			**1.58***	0.92-2.70
10-14 years			**1.64**	0.80-3.39
15+ years			**1.12**	0.49-2.57

***p-value<0.01 **p-value<0.05 *p-value<0.10 Model 3: log likelihood = -397.91012, person-years = 1135; Model 4: log likelihood = -393.92819 , person-years = 1135

Although no significant association between repartnering and the number of partnerships a woman had previously had was found in the bivariate analysis, there was some suggestion that the duration of the most recent previous partnership was important in predicting a move back into a partnership. In this previous analysis the odds of repartnering in any year for those whose previous partnership had lasted at least 15 years compared with those whose had only lasted for less than 5 years were significantly lower (around 45 per cent lower). No significant differences were found between the odds of repartnering for those in other categories compared with the reference category however. However, due to the association of duration of partnership with age, this association is likely to be modified in a multivariate setting.

Both these variables were included in the model and as can be seen in Table 7.7 (Model 4), however they provided no significant improvement to the fit of the model overall. Nonetheless there is some suggestion that those with three or more partnerships have higher odds of repartnering compared with those who had only had one previous partnership, although this is only significant at the ten per cent level. Furthermore, the large confidence interval around this estimate (which included zero when calculated for the parameter estimate) due to the small sample size of this category (see Appendix B) reflects that this relationship is not well determined and may be only present in this particular sub-sample of women obtained for this analysis. There is also a suggestion that the odds of repartnering are higher for those with a previous union duration between five and nine years compared with those with a shorter prior union duration of less than five years (p<0.10). It would be interesting to see if the same relationships and a higher level of significance might be obtained if the sample was larger.

7.4 Discussion of results

The main focus of analyses in this chapter was to determine the factors associated with repartnering for women entering lone motherhood as a result of the breakdown of a previous partnership, rather than through having a birth whilst single and never-married as was the focus of the previous chapter. In addition to this, the average length of time spent as this type of lone mother was of interest as before, as well as how duration itself is related to repartnering and its effect on the relationship between the significant covariates and repartnering. Furthermore, the findings in this chapter can be considered

in light of the findings from the previous chapter, allowing for the patterns of repartnering to be compared and contrasted across the two groups of lone mothers.

A median duration of lone motherhood of just over five years was observed for lone mothers separated from a previous partnership. This result is not directly comparable with previous findings in relation to the duration of lone motherhood since in this analysis we have grouped those separated from a cohabiting relationship with the previously married. However, the results here are of a similar magnitude to previous estimates of around four and a half years duration for the previously married (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Rowlingson and McKay, 1998; McKay, 2003). Findings here also indicate that there is little difference in the duration of lone motherhood for those separated from a partnership compared with the single never-married (see Section 6.1).

This analysis suggests that the impact of duration spent as a lone mother on the likelihood of repartnering is negligible. The fully non-parametric model found no significant difference between the odds of repartnering for each of the time dummies, and the parametric model suggested only a very small reduction in the odds of repartnering with each additional year spent as a lone mother which was only statistically significant at the ten per cent level. This finding is in contrast to previous studies which have found evidence of duration dependence (Ermisch et al., 1990; Böheim and Ermisch, 1998; Ford et al., 1998; Payne and Range, 1998). Furthermore, non-significant interactions between duration and other explanatory covariates in the model indicate that the effects of the covariates on repartnering do not change over the length of time a woman remains a lone mother.

As expected from the literature review in Chapter 2, age at the time of becoming a lone mother is found to be a highly important determinant of repartnering and in fact for this group of lone mothers is the most important variable in relation to repartnering. A clear and highly significant negative effect on repartnering for those entering lone parenthood at older ages is observed. Previous research has put forward factors relating to economic theory to explain this association, such as the relative position of older women in the marriage market and the diminished pool of partners at older ages (Dean and Gurak, 1978; cited by Bumpass et al., 1990); or that younger women are more 'attached' to marriage as a result of their more limited experience in nonfamilial roles

and hence are more inclined to remarry (Smock, 1990). Others stress the importance of youth in physical attractiveness and point to the fact that older women are either less able, or less willing to bear children making them less desirable to a new partner (Ermisch and Wright, 1991). Interestingly though, the relationship found here between age and repartnering is slightly different to that found for single never-married lone mothers, where a spike in the odds for those aged 25-29 suggested women between these ages might have higher odds of repartnering compared with the youngest age group (those aged 16-19 years), although this difference was not statistically significant.

Other demographic factors are also important determinants of repartnering for this group of lone mothers, including the number of children a woman had upon entering lone motherhood and the type of partnership she had been in. Most previous studies that have analysed the relationship between repartnering and number of children have found evidence to suggest that larger numbers of children have a negative effect on repartnering (Koo et al., 1984; Bumpass et al., 1990; Ermisch et al., 1990; Smock, 1990; Ermisch and Wright, 1991; Lampard and Peggs, 1999). Indeed the results of this study provide support for this association with those with two children having lower odds of repartnering compared to those with only one child. With respect to the type of union which broke down and repartnering the findings from this study do not support findings from other studies which have looked at repartnering in general. Results from this study suggest that those separated from a cohabiting union might be less likely to repartner compared with those separated from a marriage after controlling for other factors, in contrast to what has been indicated by other studies (Poortman, 2007). However, the lower odds of repartnering for those separated from a cohabiting relationship were only significantly different from those separated from a marriage at just over the ten per cent level (p-value=0.104), indicating that in actual fact there may be no significant difference between repartnering and the two types of previous partnerships, as has also been suggested by analyses by Payne and Range (1998). Moreover, adding in information on the partnership history of a lone mother (Section 7.3.4), namely the number of partnerships she had previously had and the length of the most recent partnership, did not significantly improve the fit of the model. Contrary to the findings of Poortman (2007) there was some suggestion that those with more previous partners (three or more) will repartner more quickly than those who had only had one, although the confidence interval surrounding the estimate was large. The suggestion that those with a longer prior union duration of between five and nine years compared with those

with a previous union duration of less than five years is in line with the results from other studies which have indicated a positive effect of prior union duration on the chance of repartnering (Ermisch et al., 1990; Ermisch and Wright, 1991).

Further support for the importance of socio-economic variables and repartnering is provided by this study, with a lone mother's mental health (determined by GHQ score) found to be an important indicator of repartnering. Women with some mental health problems (scores at or over the threshold of four, but under seven) appear to have a higher propensity to repartner than women with no mental health problems. This is surprising considering the findings by Pevalin and Ermisch (2004) of a reduced chance of repartnering for those with poorer mental health immediately after a transition out of a cohabiting union in their study. Having said that, one might expect that women who have no mental health problems might feel more content on their own and are perhaps not searching as hard for a new partner as those women who are not feeling so happy and who might therefore welcome the emotional support of a new partner. Furthermore, women who are not feeling happy might be less particular about a new partner than women who are feeling content on their own and hence will be likely to repartner more quickly. The trend in the odds of repartnering between GHQ scores is the same here as was found in the analysis of single never-married lone mothers. However, for that sample the covariate never even achieved statistical significance in the bivariate analysis. This might suggest that the relationship between repartnering and mental health is in fact the same for single never-married lone mothers as for those separated from a previous partnership, just that the sample size for the first group of lone mothers is not large enough to determine this at statistically significant levels.

As was found for the never-married lone mothers it would appear that religion is important in relation to repartnering. For this group of lone mothers it was the variable indicating the religion to which she belonged that was important in the final model, rather than that indicating the frequency at which she attended religious services or meetings as it was for single never-married lone mothers. However, the relationship between religion and repartnering suggests the same conclusion; that those having some sort of affiliation to a religion appear to be less likely to repartner than those not belonging to one at all, in support of findings from remarriage/repartnering studies (e.g. De Graaf and Kalmijn, 2003). In particular for these lone mothers it is those belonging to the 'Other' religious group (which was mainly people belonging to the Church of

Scotland and other Christian groups) that have considerably lower odds of repartnering compared to those not affiliated with any religion.

Employment status is also an important determinant of repartnering with significantly lower odds of repartnering found for women who were unemployed at the beginning of the interval compared to women that were employed. This goes against economic theory, which has often been put forward to explain the relationship between repartnering and employment status, where women out of employment and hence likely to be in a poorer economic situation will have more economic need to repartner and hence are likely to repartner quicker than those who are more financially secure. However, the findings from this study are in line with the premise suggested by social theory that those in employment are likely to meet more people and hence repartner at a quicker rate than those not in employment. Furthermore the findings here provide additional support for the positive effect of employment on repartnering found by a number of previous studies on remarriage/repartnering of lone mothers (Ermisch et al., 1990; Ermisch and Wright, 1991; Marsh and Vegeris, 2004). The relationship between repartnering and employment status found here is not dissimilar from that suggested in Chapter 6 after analysis of the single never-married lone mothers, although in the analysis of single never-married lone mothers it was the family care category which had the lowest odds of repartnering compared with those in employment.

Overall it can be seen from this analysis that whilst demographic factors, such as age and number of children, are undeniably important in determining how quickly women who became a lone mother through the breakdown of a partnership will find a new partner, socio-economic factors should not be ignored. Specifically this study has shown the overriding importance of mental health and religious affiliation in relation to repartnering over the more standard socio-economic variables such as housing tenure, employment status or social class that have traditionally been investigated in relation to repartnering. Although, that is not to say that employment status is unimportant as described above. Furthermore, this analysis has suggested that factors found to be important for this type of lone mother, such as that of mental health, and employment status might also be important for single never-married lone mothers, but the small sample size of this former group and hence lack of statistical power means that statistically significant results cannot be obtained. As a result of this the next chapter will perform the multivariate analysis on the combined sample of all lone mothers in

order to obtain the maximum statistical power to determine significant results, whilst controlling for the type of lone mother. Additionally, testing for interactions between the significant variables and the type of lone mother will explicitly determine whether the relationship between the variables and repartnering is different for the different types of lone mothers.

Chapter 8

Determinants of repartnering for all lone mothers: Analysis of repartnering using a pooled sample of all lone mothers

The results of the separate analyses of repartnering among single never-married lone mothers and those becoming lone mothers through the breakdown of a partnership (Chapters 6 and 7 respectively) suggest that the determinants of repartnering are different for each type of lone mother. However, the small sample size of the group of single never-married lone mothers means that the statistical power to determine significant relationships between covariates and repartnering is limited. It may well be that given a larger sample size for this group, that more similarities in the determinants of repartnering might be observed for the two groups. Indeed, the similarity in the nature of the relationships between certain covariates and repartnering across the two samples suggests that this might be the case. This chapter therefore investigates the determinants of repartnering on the combined sample of lone mothers. Firstly the results of a multivariate analysis using the same explanatory variables as previously[18] are presented. Finally, this is followed by a discussion of the results which considers how they compare with the results from the two separate analyses and what this demonstrates about the similarities and differences between repartnering for the two groups of lone mothers.

---

[18] Some minor alterations to the coding were necessary to account for the combining of the samples and the different demographic profile of the two samples.

8.1 Results of the multivariate model investigating the determinants of repartnering for all lone mothers

As with the previous samples, a process of listwise deletion was used to account for missing data on the explanatory covariates in order to allow for the use of a likelihood ratio test to compare nested models. Using a forwards selection procedure as before the significant variables were selected into the model, with a significance level for inclusion set at the ten per cent level.

Interactions between the function of time and the main effects were carried out in order to test for nonproportionality in the hazards. Furthermore, interactions between type of lone mother and all covariates previously found to be associated with repartnering in the separate multivariate analyses were examined. The resulting model was then re-fitted to a sample where only the missing data for covariates in the final model was deleted, thus achieving the maximum possible sample size. Two models were implemented on this sample – one with a fully nonparametric baseline hazard and one where time was parameterised using a linear function. These final models are re-produced in Table 8.1 below.

Duration spent as a lone mother and repartnering

Despite the larger sample size for this model, the results indicate there is no association between duration spent as a lone mother and the likelihood of repartnering. Furthermore, the interactions between time and the main effects were not found to be significant and indicate the existence of proportional hazards.

Table 8.1 Odds ratios for discrete time event history models predicting repartnering for all lone mothers

Explanatory variables	Model 1 (non-parametric time)		Model 2 (linear time)	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Time				
0-1 (r)	**1.00**			
1-2	**0.73**	0.48-1.11		
2-3	**0.95**	0.60-1.50		
3-4	**0.70**	0.40-1.22		
4-5	**0.75**	0.39-1.45		
5-6	**0.86**	0.41-1.78		
6-7	**0.48**	0.17-1.41		
7-8	**0.91**	0.30-2.73		
8-9	**0.27**	0.03-2.03		
Time (linear)			**0.94**	0.86-1.02
Age				
16-24 years (r)	**1.00**		**1.00**	
25-29 years	**2.02****	1.14-3.55	**1.99****	1.13-3.51
30-34 years	**0.37*****	0.18-0.76	**0.37*****	0.18-0.76
35+ years	**0.26*****	0.13-0.52	**0.26*****	0.13-0.52
GHQ Score†				
1-3 (r)	**1.00**		**1.00**	
4-6	**1.83*****	1.22-2.74	**1.84*****	1.23-2.76
7-12	**0.83**	0.54-1.27	**0.83**	0.54-1.28
Type of lone mother				
Previously married (r)	**1.00**		**1.00**	
Previously cohabiting	**0.57***	0.32-1.03	**0.57***	0.32-1.02
Never-married	**0.53**	0.25-1.14	**0.54**	0.25-1.14
Employment Status†				
Employed (r)	**1.00**		**1.00**	
Unemployed	**0.48***	0.22-1.03	**0.48***	0.22-1.04
Family Care	**0.58****	0.40-0.85	**0.59****	0.40-0.86
Other	**0.94**	0.52-1.70	**0.94**	0.52-1.70
Number of children				
One child (r)	**1.00**		**1.00**	
Two children	**1.12**	0.54-2.32	**1.11**	0.54-2.28
Three or more children	**0.96**	0.09-10.12	**0.96**	0.09-9.98

***p-value<0.01 **p-value<0.05 *p-value<0.10 †Time-varying covariates   cont/d…

Table 8.1 continued

	Model 1		Model 2	
Religion				
No religion (r)	**1.00**		**1.00**	
Church of England/Anglican	**1.02**	0.68-1.54	**1.02**	0.68-1.52
Roman Catholic	**0.89**	0.49-1.62	**0.90**	0.50-1.62
Other religion	**0.40***	0.22-0.74	**0.40***	0.22-0.74
Highest academic qualification†				
Degree	**0.51***	0.26-1.02	**0.52***	0.26-1.02
A-levels	**0.62**	0.35-1.10	**0.62**	0.35-1.10
O-levels	**0.65***	0.41-1.02	**0.65***	0.42-1.03
CSE	**0.46***	0.27-0.79	**0.46***	0.27-0.79
None of these (r)	**1.00**		**1.00**	
Receipt of alimony†				
Yes	**0.71***	0.48-1.06	**0.72***	0.48-1.06
No (r)	**1.00**		**1.00**	
Attendance at religious services				
Once a week or more	**0.47**	0.19-1.18	**0.48**	0.19-1.20
At least once a month	**0.67**	0.29-1.54	**0.66**	0.29-1.53
At least once a year	**0.70**	0.38-1.27	**0.70**	0.38-1.27
Practically never	**0.68**	0.39-1.18	**0.67**	0.38-1.17
Only weddings/funerals (r)	**1.00**		**1.00**	
Type of lone mother*Attendance at religious services				
Previously married*Only weddings funerals (r)	**1.00**		**1.00**	
Previously cohabiting*Once a week or more	**5.82***	0.99-34.00	**5.83***	1.00-33.93
Previously cohabiting*At least once a month	**3.30**	0.79-13.72	**3.34***	0.80-13.86
Previously cohabiting*At least once a year	**0.41**	0.10-1.67	**0.42**	0.10-1.69
Previously cohabiting*Practically never	**1.41**	0.61-3.27	**1.42**	0.61-3.28
Never-married*Once a week or more	**4.65***	0.78-27.74	**4.60***	0.78-27.25
Never-married*At least once a month	**0.22**	0.02-2.13	**0.22**	0.02-2.09
Never-married*At least once a year	**0.71**	0.21-2.34	**0.70**	0.21-2.32
Never-married*Practically never	**0.58**	0.21-1.66	**0.59**	0.21-1.66
Number of children*Age				
16-24*one child (r)	**1.00**		**1.00**	
25-29*two children	**0.21***	0.07-0.60	**0.21***	0.07-0.61
25-29*three or more children	**0.65**	0.05-8.35	**0.64**	0.05-8.06
30-34*two children	**0.65**	0.22-1.94	**0.66**	0.22-1.95
30-34*three or more children	**2.64**	0.22-31.82	**2.62**	0.22-31.01
35+*two children	**0.92**	0.33-2.52	**0.93**	0.34-2.55
35+*three or more children	**2.40**	0.19-30.41	**2.36**	0.19-29.36

***p-value<0.01 **p-value<0.05 *p-value<0.10   †Time-varying covariates

Model 1: log likelihood = -568.18534, person-years = 1618 Model 2: Log likelihood = -570.29966, person-years = 1618

Demographic indicators

Of the demographic factors tested in the modelling process, age is found to be the most important determinant of repartnering. However, a significant interaction between age and the number of children a lone mother has upon entering lone motherhood indicates that the relationship between age and repartnering is modified depending on the number of children. Therefore, the main effects of age and number of children can now only be considered in the context of the interaction between them. From Table 8.1 it can be seen that for mothers with only one child, the odds of repartnering are significantly higher for women aged 25-29 years compared with women aged 16-24 years, but the odds are significantly lower for those aged 30-34 and 35+ years compared with this youngest age group. For those aged 16-24 there is no significant difference in the odds of repartnering depending on the number of children.

Figure 8.1 shows the predicted probabilities for each category of the interaction. As was found for those with only one child, an increase in the estimated probabilities of repartnering for those aged 25-29 compared with those aged 16-24 is noted for those with three or more children, but decreased probabilities are seen at later ages. However, the differences in probabilities across the different age groups for lone mothers with this many children are small in magnitude. For those with two children the estimated probabilities reflect the expected pattern and appear to decrease as the age of a lone mother increases. In fact the lower probability of repartnering for those aged 25-29 is significantly different from the probability of repartnering for those aged 16-24 with only one child.

Figure 8.1 Estimated probabilities of repartnering in the first year of lone motherhood by age and number of children upon entering lone motherhood (all lone mothers)
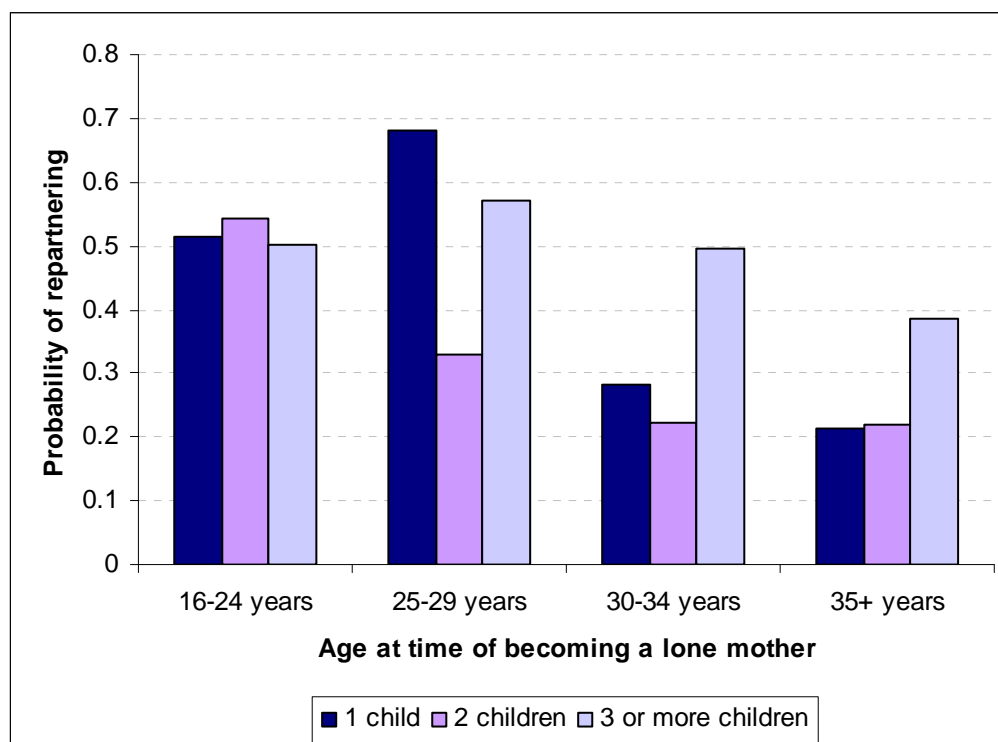
Note: all other covariates set to their reference value

Type of lone mother is significantly related to repartnering and is found to interact with Income Support and attendance at religious services or meetings. The most significant interaction was that between type of lone mother and religious attendance, with the interaction between Income Support and type of lone mother not significantly improving the fit of the model after the inclusion of the former interaction. As with age and number of children, this means that the effect of type of lone mother and repartnering cannot be interpreted independently of religious attendance and vice versa. Among those attending a religious service or meeting for only a wedding or a funeral, the odds of repartnering are found to be significantly lower for those who were previously cohabiting compared with those who were married, but not significantly different for the single never-married compared with the previously married. Among the previously married the odds of repartnering are not significantly different across categories of the religious attendance variable. However, in order to interpret this interaction fully it is necessary to calculate the estimated predicted probabilities of repartnering for each category of the two variables as shown in Figure 8.2 below.

Figure 8.2 Estimated probabilities of repartnering in the first year of lone motherhood by type of lone mother and religious attendance (all lone mothers)
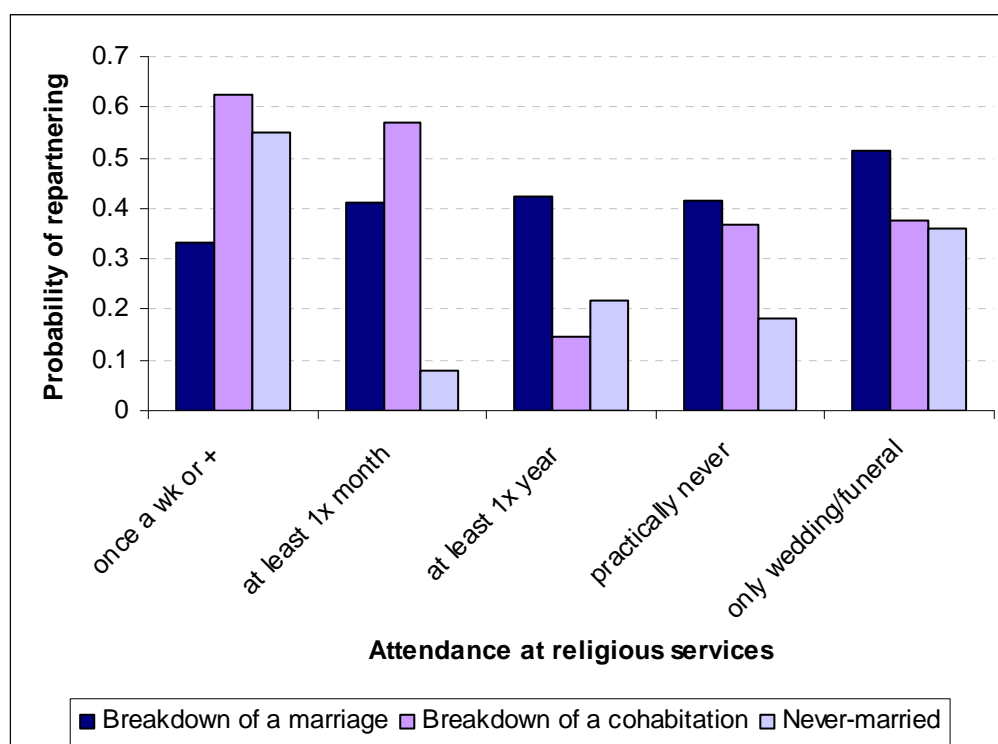
Note: All other covariates in model set to their reference value

From Figure 8.2 it would appear that the probability of repartnering for women becoming lone mothers through the breakdown of a marriage increases as frequency of attendance at religious services or meetings decreases, although these increases are not found to be statistically significant and hence might just be a feature of this sample. For both those separated from a cohabitating relationship and single never-married lone mothers the probability of repartnering is higher for those attending once a week or more compared with those attending less frequently, with the difference between the most and least frequent group statistically significant at the ten per cent level. The pattern in the probabilities of repartnering across the middle categories of attendance for these two types of lone mothers does not follow any trend, however.

Socio-economic indicators

A number of socio-economic covariates were found to be important in the model, the most important of which was GHQ score. The relationship between this variable, which measures the mental health of a lone mother, and repartnering suggests as before that those with a score over the threshold of four, but below seven, have significantly higher

155

odds of repartnering compared with those with a score of zero to three. No significant difference is noted between those with the poorest mental health and the reference category however.

Whether or not a lone mother is in employment is also important in relation to repartnering with those in family care and those unemployed having 52 per cent and 42 per cent lower odds of repartnering compared with those in employment respectively. These differences were also statistically significant at less than the ten per cent level (in fact at less than five per cent for those in family care).

Lone mothers belonging to the 'other' religious group are, according to the model, significantly less likely to repartner than those not belonging to any religious group. However, other categories of this variable are not significantly different from the reference category.

The relationship between education and repartnering indicates that those with some sort of academic qualification have lower odds of repartnering compared with those with none, with differences nearly all significant at the ten per cent level at least. This difference is particularly marked for those obtaining CSEs, with the odds of repartnering for this group over 50 per cent lower compared with the reference category.

The final socio-economic variable to be included in the model was that indicating whether or not a lone mother was receiving maintenance or alimony. The model suggests that the odds for those in receipt of this are nearly thirty per cent lower, achieving significance at the ten per cent level.

Table 8.2 Multivariate models including the partnership history variables (all lone mothers)

Explanatory variables	Model 3		Model 4		Model 5	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Time						
0-1 (r)	**1.00**		**1.00**		**1.00**	
1-2	**0.71**	0.45-1.11	**0.71**	0.45-1.11	**0.71**	0.45-1.11
2-3	**0.74**	0.45-1.24	**0.74**	0.44-1.23	**0.74**	0.44-1.23
3-4	**0.67**	0.37-1.21	**0.66**	0.37-1.20	**0.67**	0.37-1.22
4-5	**0.57**	0.28-1.19	**0.58**	0.28-1.21	**0.58**	0.28-1.21
5-6	**0.64**	0.29-1.43	**0.64**	0.29-1.43	**0.65**	0.29-1.45
6-7	**0.48**	0.16-1.40	**0.47**	0.16-1.39	**0.49**	0.17-1.43
7-8	**0.81**	0.27-2.46	**0.79**	0.26-2.41	**0.85**	0.28-2.57
8-9	**0.24**	0.03-1.80	**0.23**	0.03-1.75	**0.25**	0.03-1.91
Age						
16-24 years (r)	**1.00**		**1.00**		**1.00**	
25-29 years	**2.14****	1.13-4.09	**2.00*****	1.04-3.85	**2.04****	1.05-3.93
30-34 years	**0.33*****	0.15-0.75	**0.30*****	0.13-0.68	**0.29*****	0.12-0.67
35+ years	**0.26*****	0.12-0.56	**0.24*****	0.11-0.52	**0.25*****	0.10-0.59
GHQ Score†						
1-3 (r)	**1.00**		**1.00**		**1.00**	
4-6	**1.81*****	1.18-2.78	**1.77*****	1.15-2.73	**1.83*****	1.19-2.81
7-12	**0.81**	0.51-1.29	**0.79**	0.50-1.27	**0.80**	0.50-1.28
Type of lone mother						
Previously married (r)	**1.00**		**1.00**		**1.00**	
Previously cohabiting	**0.46****	0.24-0.90	**0.46****	0.23-0.90	**0.53***	0.26-1.06
Never-married	**0.49***	0.22-1.09	**0.65**	0.20-2.12	**0.72**	0.22-2.38
Employment Status†						
Employed (r)	**1.00**		**1.00**		**1.00**	
Unemployed	**0.65**	0.29-1.43	**0.65**	0.29-1.44	**0.65**	0.29-1.43
Family Care	**0.65****	0.43-0.97	**0.64****	0.42-0.95	**0.66****	0.44-0.99
Other	**1.07**	0.57-2.01	**1.07**	0.57-2.01	**1.10**	0.58-2.07
Number of children						
One child (r)	**1.00**		**1.00**		**1.00**	
Two or more children	**1.14**	0.48-2.75	**1.11**	0.46-2.69	**1.14**	0.47-2.76
Religion						
No religion (r)	**1.00**		**1.00**		**1.00**	
Church of England	**0.93**	0.60-1.43	**0.95**	0.61-1.48	**0.92**	0.59-1.43
Roman Catholic	**0.98**	0.52-1.83	**1.02**	0.54-1.91	**1.04**	0.55-1.96
Other religion	**0.42*****	0.22-0.80	**0.43****	0.23-0.82	**0.42*****	0.22-0.79
Highest academic qualification†						
Degree	**0.49***	0.24-1.02	**0.46****	0.22-0.96	**0.51***	0.25-1.06
A-levels	**0.63**	0.33-1.18	**0.64**	0.34-1.21	**0.64**	0.34-1.22
O-levels	**0.66**	0.40-1.09	**0.66**	0.40-1.09	**0.66**	0.40-1.09
CSE	**0.49****	0.27-0.88	**0.52****	0.28-0.94	**0.51****	0.28-0.93
None of these (r)	**1.00**		**1.00**		**1.00**	

***p-value<0.01 **p-value<0.05 *p-value<0.10 †Time-varying covariates

Table 8.2 continued

	Odds ratio	95% C.I.	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Receipt of alimony†						
Yes	**0.72**	0.47-1.10	**0.72**	0.47-1.11	**0.72**	0.47-1.10
No (r)	**1.00**		**1.00**		**1.00**	
Attendance at religious services						
Once a week or more	**0.66**	0.27-1.65	**0.71**	0.28-1.77	**0.70**	0.28-1.76
At least once a month	**0.74**	0.32-1.72	**0.80**	0.34-1.88	**0.77**	0.33-1.81
At least once a year	**0.79**	0.43-1.45	**0.83**	0.45-1.52	**0.81**	0.44-1.50
Practically never	**0.72**	0.40-1.30	**0.77**	0.42-1.39	**0.75**	0.41-1.37
Only weddings/funerals (r)	**1.00**		**1.00**		**1.00**	
Type of lone mother*Religious attendance						
Previously married*Only weddings funerals (r)	**1.00**		**1.00**		**1.00**	
Previously cohabiting*Once a week or more	**4.72**	0.42-53.31	**4.20**	0.36-49.28	**3.91**	0.34-45.28
Previously cohabiting*At least once a month	**2.23**	0.43-11.55	**2.03**	0.39-10.66	**2.32**	0.44-12.23
Previously cohabiting*At least once a year	**0.52**	0.06-4.69	**0.48**	0.05-4.32	**0.47**	0.05-4.23
Previously cohabiting*Practically never	**1.97**	0.73-5.31	**1.81**	0.67-4.91	**1.79**	0.65-4.89
Never-married*Once a week or more	**3.14**	0.53-18.66	**3.01**	0.50-18.02	**3.03**	0.50-18.34
Never-married*At least once a month	**0.21**	0.02-1.99	**0.18**	0.02-1.79	**0.19**	0.02-1.80
Never-married*At least once a year	**0.65**	0.20-2.14	**0.63**	0.19-2.13	**0.64**	0.19-2.12
Never-married*Practically never	**0.55**	0.19-1.59	**0.49**	0.17-1.44	**0.50**	0.17-1.47
Number of children*Age						
16-24*one child (r)	**1.00**		**1.00**		**1.00**	
25-29*two children	**0.26****	0.09-0.79	**0.28****	0.09-0.83	**0.24****	0.08-0.73
30-34*two children	**1.00**	0.31-3.17	**1.10**	0.35-3.53	**0.93**	0.29-3.00
35+*two children	**1.03**	0.34-3.13	**1.06**	0.35-3.21	**0.98**	0.32-3.00
Number of previous partners						
No previous partner (r)			**1.00**			
1 partner			**1.28**	0.45-3.68		
2 partners			**1.59**	0.52-4.86		
3 or more partners			**2.29**	0.62-8.39		
Previous partnership duration						
Less than 5 years (r)					**1.00**	
5-9 years					**1.50**	0.87-2.59
10-14 years					**1.67**	0.83-3.37
15+ years					**1.18**	0.54-2.59
No previous partner					**0.80**	0.28-2.28

Model 3: Log likelihood = -490.30169 Model 4: Log likelihood = -488.89466 Model 5: Log likelihood = -488.57373

Partnership history variables

As was the procedure in the analysis of the determinants of repartnering among lone mothers separated from a previous partnership, the partnership history variables were investigated using a sample where missing data on these covariates was also deleted. Model 3 in Table 8.2 is the final model[19] (previously shown in Table 8.1) fitted on the smaller sample with no missing data on partnership histories (N=1441).

The odds ratios found here for the final model are very similar to those found when the model was fitted on the full sample, reflecting that the results from fitting the partnership history variables can be interpreted as if fitted on the full sample. In this analysis the variables measuring the number of previous partnerships and previous partnership duration were added separately as problems with multicollinearity were observed when they were added together to the same model. Models 4 and 5 indicate that the number of previous partners a lone mother has had, or the length of the most recent previous partnership, are not related to her chance of repartnering.

8.2 Discussion of results

The aim of this chapter was to investigate the determinants of repartnering for lone mothers using data from both groups of lone mothers combined into one 'pooled' sample. The rationale for doing this was to use the maximum possible statistical power, gained by combining the two samples, to determine significant relationships between explanatory covariates and repartnering. Furthermore controlling for the type of lone mother in the analysis and then testing for interactions between this variable and other covariates in the model would statistically test whether the relationship between the variables and repartnering differs depending on the type of lone mother. The separate analyses indicated that some of the relationships between explanatory covariates and repartnering might be the same for both groups of lone mothers due to similar patterns observed in the odds ratios across categories of the variable. However in many cases no significant differences were observed for the smaller sample of single never married lone mothers with only speculation that the relationships might be the same. It was

---

[19] Apart from the variable relating to number of children which had to be collapsed due to problems with multicollinearity in the final model

therefore of interest to investigate whether a different method, as used in this chapter, might provide more evidence as to whether this is in fact the case.

Firstly, as was observed for the two separate analyses, results from this analysis find no evidence of a relationship between repartnering and the length of the spell of lone motherhood. Furthermore, the presence of proportional hazards is confirmed indicating that the relationship between significant explanatory covariates and repartnering is not modified by the length of time spent as a lone mother.

As was found in the models constructed on the separate samples, it would appear that both socio-economic and demographic factors are associated with repartnering. The larger statistical power resulting from combining the two samples reveals a significant association between alimony and repartnering which was not present in either of the two previous multivariate models. As was suggested by the bivariate analyses of both samples, a negative effect on repartnering is observed for those receiving some level of maintenance or alimony. Considering the relationships found in this analysis between each explanatory covariate and repartnering compared with those found in the previous separate analyses it can be seen that they all remain broadly the same, but with improved levels of significance for many variables. In particular, the increase in odds of repartnering for those aged 25-29 years compared with those aged 16-19 years that was suggested for the never-married single lone mothers is confirmed in this analysis, although this is only significant for those with only one child. Furthermore, the suggestion that those not in employment are less likely to repartner, as indicated by the model for those that entered lone motherhood through the breakdown of a partnership (Section 7.3.1), is strengthened, with significant differences noted for both those unemployed and in family care compared with those employed in this analysis. Additionally, the larger sample size enabled the determination of a significant interaction between age and number of children. This indicated that the relationship between age and repartnering is modified depending on the number of children a lone mother had upon entering lone motherhood. However, even using the pooled sample there is no evidence to suggest that a lone mother's partnership history is related to her likelihood of repartnering.

The route of entry into lone motherhood has a significant effect on the chance of repartnering; the results suggest that, at least for those only attending a religious service

for a wedding or funeral, the chance of repartnering is significantly lower for those who entered lone motherhood through the breakdown of a cohabiting union compared with those entering through the breakdown of a marriage. The probability of repartnering appears to be lowest for single never-married lone mothers, although this difference is not statistically significant. This finding is in contrast to the findings from previous studies into the repartnering of lone mothers (Le Bourdais et al., 1995; Payne and Range, 1998; Rowlingson and McKay, 1998). Interacting type of lone mother with other covariates in the model, and additionally any found to be important in the separate analyses indicates that the relationship between attendance at religious services and repartnering differs depending on the type of lone mother. Indeed, this variable was only significant in terms of the interaction and not individually related to repartnering. Overall the interaction suggests a higher probability of repartnering for those attending religious services or meetings regularly (at least once a week or more) compared with those only attending for funerals or weddings among previously cohabiting or single never-married lone mothers. This can perhaps be explained by social theory relating to repartnering which emphasises the importance of meeting opportunities. Religious services or meetings are likely to provide some sort of social network within which to meet new people and hence more regular attendance at services is likely to signal higher participation in this network. For lone mothers separated from a marriage a negative effect of increased participation in such meetings is suggested however, although this is not statistically significant.

An interaction between type of lone mother and Income Support suggested that the relationship between repartnering and this variable depends on the type of lone mother, which was not surprising considering the importance of this variable in relation to repartnering for the never-married. This interaction was less significant than that relating to religious attendance however and no longer significant after the addition of this latter interaction into the model. No other significant interactions were found between type of lone mother and the other explanatory variables, indicating that there is no evidence to suggest the relationship between repartnering and the other covariates in the model differs between the two groups of lone mothers. However, this still might be due to the smaller sample size of single never-married lone mothers in comparison with those separated from a previous partnership.

It would appear from the model in this analysis that women entering lone motherhood through the breakdown of a previous partnership dominate over the smaller sample of single never-married lone mothers. All the factors associated with repartnering in the separate analysis of previously partnered lone mothers are found here in this model, yet only three out of the five found in the analysis of single never-married lone mothers are represented here. This suggests that the never-married lone mothers are somewhat 'lost' in the combined sample and hence models based on combined data such as this, where the two groups are not equally represented, may not be entirely representative of the smaller group.

Chapter 9

Re-marry or re-cohabit? How demographic and socio-economic factors are related to the different exits from lone motherhood

Chapters 6, 7 and 8 provided an insight into the determinants of repartnering among lone mothers. However they do not provide any information on the types of new unions that are formed, or how these might vary for each type of lone mother. Previous research on repartnering in general, as outlined in Chapter 2, found that different factors are associated with forming a cohabiting second union versus a marital second union (Wu and Balakrishnan, 1994; De Graaf and Kalmijn, 2003; Wu and Schimmele, 2005) and it is likely that this is also the case with respect to repartnering among lone mothers. This chapter addresses these questions, firstly through the use of descriptive statistics and finally through the use of a multinomial logistic hazard model. The descriptive statistics are useful to explore the data and identify proportions of each type of lone mother that form a new partnership in the sample as well as to investigate questions such as what proportion are returning to a previous partner rather than forming a partnership with someone new, for example. The multinomial hazard model is used to investigate how the effects of the explanatory variables on repartnering might differ depending on the types of new unions formed. In particular testing for the significance of type of lone mother in the model will determine whether the effect of the type of lone mother is different depending on the type of exit from lone motherhood.

9.1 Descriptive analysis of repartnering among the pooled sample of lone mothers

A descriptive analysis using the combined sample of all lone mothers was carried out to investigate the proportions of the sample that were found to repartner as well as to examine how these transitions varied by type of lone mother. Furthermore, it was of interest to identify proportions moving into each type of partnership, whether it was a cohabitation or a marriage, and how this varied by type of lone mother.

Table 9.1 shows the percentages of lone mothers that repartnered by repartnering type. Overall 218 women were found to repartner which accounted for just over 40 per cent of the sample. What is also apparent from the table is the preference for forming a cohabitating union over direct marriage, with around 74 per cent of those repartnering forming this kind of union.

Table 9.1 Percentages repartnering by type of partnership formed (all lone mothers)

Repartnering type	Frequency	Percent
Stay lone mother	324	59.8
(Re)marry	56	10.3
(Re)cohabit	162	29.9
Total	542	100

From investigating the timing of the formation of the partnerships for those that did repartner (Figure 9.1 below) it is clear that most who did repartner did so in the first few years since becoming a lone mother. It would also appear from this graph that lone mothers form cohabitations quicker than marriages with around 85 per cent of those that did repartner forming a cohabitation by the end of three years compared with just over 70 per cent (re)marrying.

Figure 9.1 Cumulative percentages forming a marital or cohabiting union over time for those that repartnered
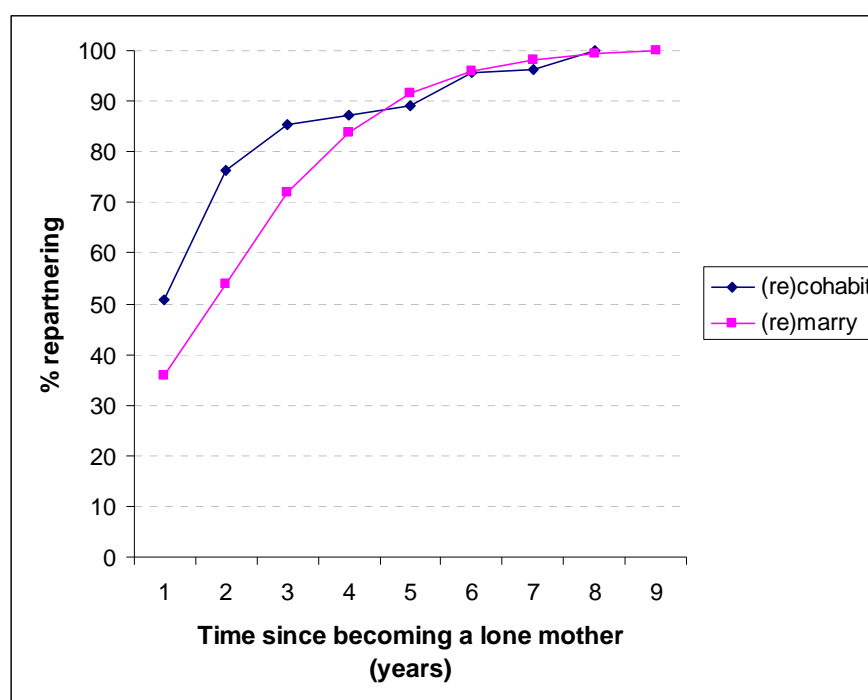
An association between type of lone mother and transition type is observed in Table 9.2, with the formerly married more likely to form a marriage than the previously cohabiting or the single never-married. The percentages repartnering across type of lone mother are very similar, however, with 39 and 38 per cent repartnering among the previously married and single never-married respectively, and only a slightly higher percentage of around 44 per cent for the previously cohabiting.

Table 9.2 Frequency forming a marital or cohabiting union by type of lone mother (all lone mothers)

Type of lone mother	Type of partnership formed					
	Frequency (re)marry		Frequency (re)cohabit		Total	
Previously married	42	(37)	72	(63)	114	(100)
Previously cohabiting	8	(12)	60	(88)	68	(100)
Single, never-married	6	(17)	30	(83)	36	(100)
Total	56		162		218	

Examining just those lone mothers separated from a previous partnership in more detail reveals that around 25 per cent of the total number repartnering for each type of lone mother are returning to a previous partner rather than forming a relationship with somebody new (24 per cent of the previously married that repartner and 26 per cent of the previously cohabiting). Investigating these proportions by repartnering type (Table

9.3) indicates that over 50 per cent of previously partnered lone mothers who re-marry are re-marrying their previous husband, compared with only 14 per cent of those who re-cohabit.

Table 9.3 Frequency repartnering with a previous partner by type of partnership formed for those entering lone motherhood through the breakdown of a partnership

Repartners with previous partner	Type of partnership formed	
	Frequency (re)marry (%)	Frequency (re)cohabit (%)
No	22 (44)	114 (86)
Yes	28 (56)	18 (14)
Total	50 (100)	132 (100)

Cross-tabulating whether or not a mother returns to a previous partner with the type of previous partnership they were in (Table 9.4) reveals that all but one of those that re-marry were in a previous marital relationship with that same person and all that re-cohabit were cohabiting previously with that person. In fact when investigating the data in more detail it is found that all the lone mothers that re-formed a marriage with the same partner were only separated from that previous marriage rather than divorced.

Table 9.4 Type of partnership formed by type of lone mother for those returning to a previous partner (among those entering lone motherhood through the breakdown of a partnership)

Type of lone mother	Type of partnership formed	
	Frequency (re)marry	Frequency (re)cohabit
Previously married	27	0
Previously cohabiting	1	18
Total	28	18

Furthermore, inspecting the timing of the re-formation of these partnerships (Table 9.5) reveals that this process of returning is very quick, particularly for those re-marrying, with the majority (nearly 70 per cent) returning within a year and over 92 per cent within two years. Those reforming a cohabiting relationship do so at a slightly slower rate with exactly half returning in the first year and only reaching over 90 per cent in the fourth year since entering lone motherhood.

Table 9.5 Timing of repartnering for those repartnering with their previous partner (among those entering lone motherhood through the breakdown of a partnership)

Time since becoming a lone mother (years)	Repartnering type	
	(Re)marry	(Re)cohabit
1	67.86	50.00
2	25.00	27.78
3	3.57	11.11
4	0.00	5.56
5	0.00	5.56
6	3.57	0.00
Total	100 (28)	100 (18)

Similarly, after investigating the single never-married lone mothers in more detail it is found that 58 per cent of those forming a partnership (21 lone mothers) were doing so with the natural father of the child that resulted in them becoming a lone mother.

In terms of repartnering for these lone mothers, one might suspect that the factors involved in returning to a previous partner, or for the never-married, forming a partnership with the natural father of their child whom they are likely to have had a previous relationship with, are likely to be different than those determining the formation of a partnership with someone new. Later in Section 9.4 the effect of the large number of previously married lone mothers returning to a previous partner on the determinants of repartnering will be examined in more detail. However, the already small sample of single never-married lone mothers prevents differences in the patterns of partnering between those partnering with the natural father of their child and those forming a partnership with someone new to be analysed further.

9.2 Bivariate analysis of the pooled sample of lone mothers using simple multinomial logistic hazard models

Before proceeding with fitting the multinomial hazard model to the data a bivariate analysis was conducted to investigate the individual effects of each of the explanatory variables on forming the two types of second unions. As in previous bivariate analyses simple multinomial logistic hazard models were estimated including each individual explanatory variable and the function of time. Time was included in the form of

dummy variables for each time interval, although due to the small sample sizes at later durations of lone motherhood, the time dummies for eight and nine years were grouped together. Presented below are the results of the significant associations found between explanatory variables and exiting lone motherhood.

Table 9.6 shows the demographic variables found to be significant when added individually in the multinomial model. From here it can be seen that the odds of forming a cohabiting union compared with staying a lone mother are significantly lower at older ages but no significant differences are observed across age groups for those forming a marriage versus staying a lone mother. Indeed age of youngest child works in exactly the same way as age, which is not surprising considering the two are related. In fact in previous analyses, once age of the lone mother was controlled, age of the youngest child did not have any additional effect on repartnering and it is expected the same will be the case here.

Table 9.6 Demographic variables significantly associated with repartnering (simple multinomial logistic hazard models fitted to pooled sample)

Explanatory variables	Marry		Cohabit	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Age				
16-24 years (r)	1.00		1.00	
25-29 years	1.87	0.85-4.14	1.31	0.84-2.04
30-34 years	1.24	0.58-2.65	0.51***	0.32-0.81
35+ years	0.88	0.41-1.91	0.42***	0.26-0.68
Number of children				
One child (r)	1.00		1.00	
Two children	0.53*	0.26-1.10	0.83	0.58-1.21
Three or more children	2.19**	1.16-4.14	0.79	0.47-1.36
Age of Youngest Child				
Under 5 years (r)	1.00		1.00	
5-11 years	0.63	0.32-1.22	0.68**	0.46-0.99
12-15 years	1.06	0.43-2.61	0.29**	0.10-0.80
Type of lone mother				
Previously married (r)	1.00		1.00	
Previously cohabiting	0.33***	0.14-0.74	1.69***	1.16-2.46
Never-married	0.41**	0.17-0.98	1.23	0.78-1.94
Previous partnership duration				
Less than 5 years (r)	1.00		1.00	
5-9 years	1.71	0.78-3.74	0.99	0.62-1.58
10-14 years	1.67	0.72-3.89	0.56*	0.31-1.02
15+ years	0.88	0.35-2.20	0.43***	0.24-0.76
No previous partner	0.69	0.24-1.99	0.79	0.47-1.33

Number of children exerts a significant influence over forming a marriage, but not for forming a cohabitation. The relationship between number of children and forming a marriage is not straightforward however. The odds of forming a marriage for those with two children are significantly lower than for those with only one child, but significantly higher for those with three or more children compared with only one child.

The odds of forming a marriage or forming a cohabiting union are significantly different between types of lone mother. The odds of forming a marriage are significantly lower for those who are never-married or previously cohabiting compared with those who are previously married. The odds of forming a cohabitation are the opposite however, with significantly higher odds noted for those who were previously cohabiting compared with those who were married. The estimated probabilities (Figure 9.2) show this more clearly with a significantly higher probability of re-cohabiting for those previously cohabiting (0.13) compared to those previously married (0.08). It can also be seen that the probabilities of (re)marriage for those previously cohabiting or single and never-married are significantly lower (0.01 and 0.02 respectively) compared with the probability for those previously married (0.04). These therefore reflect a high propensity among lone mothers to form a union that is of the same type as their previous union. As we found out from the descriptive analysis above, in some cases these new partnerships were in actual fact a re-formation of the previous partnership.

The final demographic variable which was found to be significantly related to forming a cohabiting or marital union was the length of the previous partnership. Although no significant differences are noted across categories of this variable in relation to forming a marriage, significant differences are observed in the odds for forming a cohabitation. The odds ratios suggest that long durations of previous unions (over ten years), are associated with significantly lower odds of repartnering.

Figure 9.2 Estimated probabilities of forming a marital or cohabiting union by type of lone mother (pooled sample)
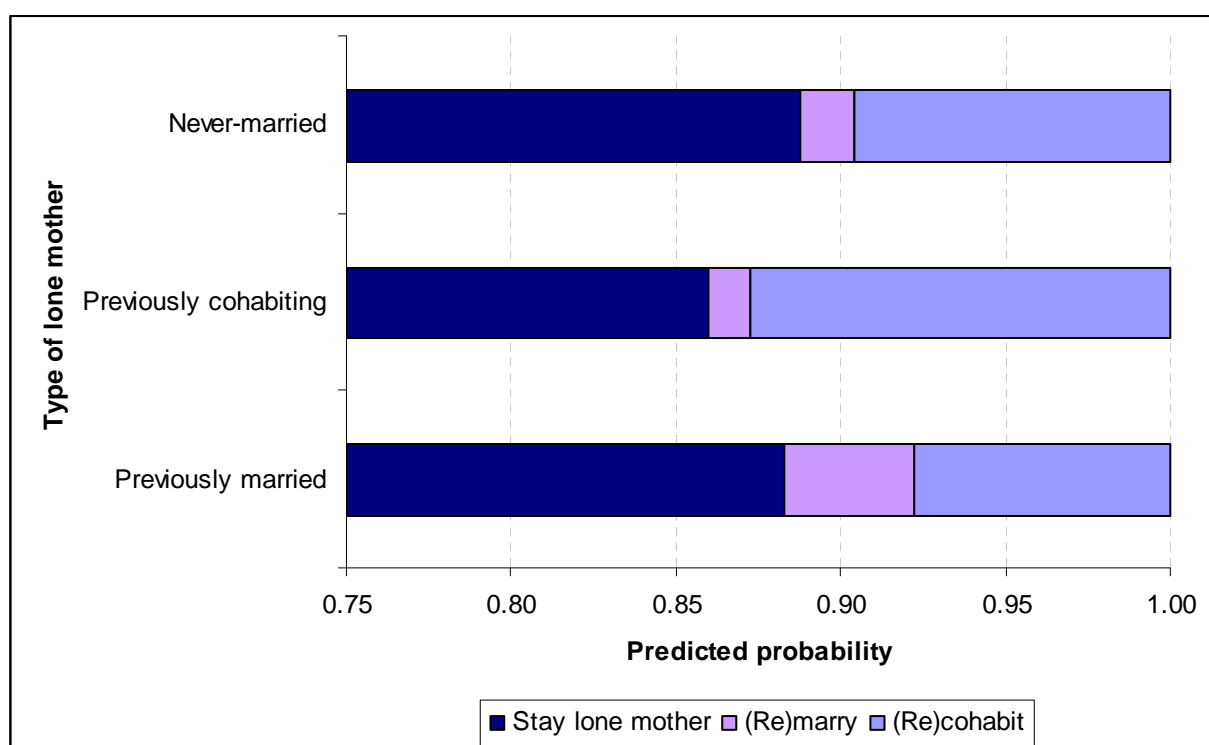
Only two socio-economic variables were found to be significantly associated with repartnering in the bivariate analysis: the measure of mental health and the variable for social class (Table 9.7). Considering firstly mental health, it can be seen that the odds of cohabiting relative to staying a lone mother are significantly higher for those with scores over the threshold of 4 and under seven compared with those with scores between zero and three. For those with the poorest mental health (scores between seven and 12) the odds of cohabiting are significantly lower than those with no mental health problems. No significant differences in odds of forming a marital union across categories of the GHQ score are noted however.

Finally examining the relationship between social class and repartnering it can be seen that the odds of forming a marriage relative to staying a lone mother are significantly higher for all other occupations compared with professional/managerial occupations. For forming a cohabiting union the odds are only significantly higher for those in skilled manual occupations compared with professional/managerial occupations however.

Table 9.7 Socio-economic variables significantly associated with repartnering (simple multinomial logistic hazard models fitted to pooled sample)

Explanatory variables	Marry		Cohabit	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
GHQ Score[†]				
1-3 (r)	**1.00**		**1.00**	
4-6	**1.08**	0.48-2.39	**1.82****	1.19-2.76
7-12	**1.18**	0.62-2.25	**0.62***	0.37-1.03
Social Class				
Professional/managerial (r)	**1.00**		**1.00**	
Skilled non-manual	**3.75****	1.27-11.07	**0.96**	0.58-1.57
Skilled manual	**4.14****	1.22-14.03	**1.72***	0.97-3.06
Partly skilled/unskilled manual	**3.72****	1.26-10.99	**1.22**	0.76-1.96
Missing	**0.92**	0.10-8.41	**1.14**	0.52-2.50

Therefore, a number of variables have been found to be significantly associated with forming a cohabitational or marital union compared with remaining a lone mother. How the relationships between the covariates and either forming a cohabiting union or forming a marriage compared to remaining a lone mother differ have been described using odds ratios. However, although odds ratios have allowed us to determine general patterns in the effects of the covariates on leaving lone motherhood via each exit, they are not the most appropriate method for interpreting the effects since the odds of remaining a lone mother among each exit type will vary and hence the numerator and denominator of the probabilities for these odds ratios will not sum to one. Within a multinomial model, the effect of each covariate on the probability of leaving via one of the exits is dependent upon the effect of that same covariate on the probability of leaving via another exit. With this is mind, predicted probabilities are used in the next section to interpret the multivariate model.

9.3 Results of the multinomial logistic hazard model of repartnering

A forwards selection procedure was employed on the pooled sample of lone mothers to select variables into the multivariate model, using a significance level set at ten per cent as in previous analyses. The sample used to select the model was the same as that used in Chapter 8, where listwise deletion was used to account for missing data on covariates. At the end of the modelling process the model was fitted to a larger sample

where only missing data on covariates significant in the model were deleted. The resulting final model can be seen below in Table 9.8. Estimated probabilities from the final model were calculated with all explanatory variables except the variable of interest set to their average level. These are shown in Table 9.9.

Duration

The probabilities of forming a marriage or forming a cohabitation do not appear to follow any trend of a decline over time. The estimated probability of forming a marriage is significantly lower between three and five years since entering lone motherhood, but after this time probabilities of re-marrying are not significantly different from that of the first year as a lone mother. No significant effect of duration spent as a lone mother on the probability of forming a cohabitation is found.

Demographic characteristics

As expected, age of youngest child is not significantly related to either marrying or cohabiting after controlling for age of the lone mother. In this model, age is now associated with leaving lone motherhood through both exits, with significantly lower probabilities of forming either union for those aged over thirty years compared with those aged 16-24 years. The predicted probability of marriage at age 16-24 years is three times that at age 35+ years with a similar but not quite as large difference in probability of cohabiting between these age groups as well.

Lone mothers separated from a cohabiting relationship or single and never-married have similar probabilities of marrying which are significantly lower than those estimated for the previously married. No significant difference in the probability of forming a cohabitation according to type of lone mother is observed however.

Those with two children are significantly less likely to marry compared with those with only one child. Again, as with type of lone mother, the number of children a lone mother has does not have any bearing on her probability of cohabiting.

Table 9.8 Odds ratios from the multinomial logistic model of repartnering fitted to the pooled sample of all lone mothers

Explanatory variables	Marry		Cohabit	
	Odds ratio	95% C.I.	Odds ratio	95% C.I.
Constant	0.08***	0.02-0.34	0.24***	0.11-0.50
Time				
0-1 (r)	1.00		1.00	
1-2	0.76	0.38-1.48	0.68	0.41-1.10
2-3	0.41*	0.15-1.10	1.13	0.69-1.84
3-4	0.11**	0.01-0.82	0.91	0.51-1.62
4-5	0.15*	0.02-1.17	0.90	0.45-1.77
5-6	0.69	0.19-2.46	0.67	0.29-1.56
6-7	0.34	0.04-2.65	0.41	0.12-1.36
7-9	0.61	0.13-2.79	0.37	0.11-1.23
Age				
16-24 years (r)	1.00		1.00	
25-29 years	0.91	0.36-2.27	1.14	0.69-1.90
30-34 years	0.38**	0.14-0.99	0.41***	0.23-0.73
35+ years	0.28***	0.11-0.72	0.33***	0.18-0.60
Type of lone mother				
Previously married (r)	1.00		1.00	
Previously cohabiting	0.22***	0.09-0.54	1.17	0.74-1.83
Never-married	0.14***	0.05-0.44	0.72	0.38-1.36
Number of children				
One child (r)	1.00		1.00	
Two children	0.35***	0.16-0.77	0.92	0.60-1.42
Three or more children	1.68	0.77-3.65	1.27	0.69-2.31
GHQ Score†				
1-3 (r)	1.00		1.00	
4-6	1.04	0.45-2.41	1.95***	1.27-3.00
7-12	1.02	0.51-2.01	0.70	0.42-1.18
Social Class				
Professional/managerial (r)	1.00		1.00	
Skilled non-manual	3.82**	1.25-11.69	0.89	0.53-1.49
Skilled manual	4.60**	1.28-16.49	1.54	0.84-2.84
Partly skilled/unskilled manual	4.45***	1.43-13.80	1.05	0.63-1.75
Missing	0.45	0.04-5.11	1.01	0.42-2.42
Ethnicity				
White (r)	1.00		1.00	
Other	4.21*	0.99-17.79	0.35	0.08-1.58
Employment Status†				
Employed (r)	1.00		1.00	
Unemployed	0.23	0.03-1.80	0.60	0.27-1.33
Family Care	0.73	0.37-1.44	0.61**	0.40-0.91
Other	1.60	0.59-4.31	0.90	0.47-1.74

***p-value<0.01 **p-value<0.05 *p-value<0.10; †Time-varying covariates; Log likelihood = -685.09279; Person-years = 1623

Table 9.9 Estimated probabilities of staying a lone mother, (re)marrying or (re)cohabiting (pooled sample)

	Stay a lone mother	(Re)marry	(Re)cohabit
Time			
0-1 (r)	0.87	0.03	0.10
1-2	0.91	0.03	0.07
2-3	0.88	0.01	0.11
3-4	0.91	0.00	0.09
4-5	0.90	0.01	0.09
5-6	0.91	0.02	0.07
6-7	0.95	0.01	0.04
7-9	0.94	0.02	0.04
Age			
16-24 years (r)	0.84	0.03	0.13
25-29 years	0.82	0.03	0.15
30-34 years	0.93	0.01	0.06
35+ years	0.94	0.01	0.05
Type of lone mother			
Previously married (r)	0.88	0.04	0.08
Previously cohabiting	0.89	0.01	0.10
Never-married	0.93	0.01	0.06
Number of children			
One child (r)	0.89	0.02	0.08
Two children	0.91	0.01	0.08
Three or more children	0.86	0.04	0.10
GHQ Score†			
1-3 (r)	0.90	0.02	0.08
4-6	0.84	0.02	0.15
7-12	0.92	0.02	0.06
Social Class			
Professional/managerial (r)	0.91	0.01	0.08
Skilled non-manual	0.90	0.02	0.07
Skilled manual	0.85	0.03	0.12
Partly skilled/unskilled manual	0.89	0.03	0.08
Missing	0.91	0.00	0.08
Ethnicity			
White (r)	0.90	0.02	0.09
Other	0.90	0.07	0.03
Employment Status†			
Employed (r)	0.88	0.02	0.10
Unemployed	0.93	0.00	0.06
Family Care	0.92	0.01	0.06
Other	0.88	0.03	0.09

Although ethnicity appears to have no effect on the probability of cohabiting, the predicted probabilities of forming a marriage are significantly lower for white lone mothers compared with those of any other ethnicity. In fact the probability of marriage for those of other ethnicity is three times that of those who are white. However, given the extremely small sample size that this estimation is based upon suggests interpreting this observation should be done so with caution.

Socio-economic characteristics

A larger number of socio-economic variables were found to be important in relation to the two types of exit after controlling for other significant variables in the multivariate model. The most important of these variables was GHQ score. Although predicted probabilities of re-marriage are the same across the different score groups, the probability of re-cohabiting is higher for those with a score of 4-6 (0.15) compared with those with a score of 0-3 (0.08).

Across social class groups the probability of cohabiting remains broadly similar. However, the probability of marriage is lower for those in professional or managerial occupations compared with other occupations.

Finally, considering employment status, the probability of cohabiting is significantly lower for those involved in family care (0.06) compared with those employed (0.10). Probabilities of cohabiting are not significantly different across other categories of employment however. Furthermore, no significant difference in the probability of marriage is observed across employment categories.

9.4 What happens when those returning to a previous partner are removed from the model?

The descriptive analysis above (Section 9.1, Tables 9.3-9.4) highlighted that a considerable proportion (over 50 per cent) of those re-marrying were actually women who had separated for a number of years and then returned to the same partner they were married to previously. These were therefore not re-marriages per se, but in fact

reconciliations. It is logical to think that the factors involved in forming a marriage with a new partner are different compared with those involved in the process of reconciling a previous relationship. Indeed, this was found to be the case in analyses by Payne and Range (1998) where a competing risk model was used to analyse differences in the relationship between determinants and two exits from lone motherhood –through a new partnership or a resumed partnership (but not distinguishing between whether this was the reforming of a marriage or a cohabitation). Due to the small number of second unions that were marriages in this sample (only 25 per cent) it is not possible to carry out a competing risk model to analyse whether the effects of covariates on the probability of reconciling a previous marriage compared with the effect of those same covariates on the probability of forming a new marriage are different. Instead, the final multivariate model (Table 9.8) was re-fitted without the women that returned to a previous partner.

Due to the smaller sample size once those returning to a previous partner had been removed some issues with infinite maximum likelihood were observed for the variables for ethnicity, social class and employment status. It was possible to resolve this problem by collapsing categories for the social class and employment status variables. However the variable for ethnicity was already binary and therefore necessarily had to be dropped from the model. This model with slightly different categorisations and without ethnicity was fitted initially to the full sample including those who returned to a previous partner (Model 1, Table 9.10). This then provided a relevant comparison to the model which only included women forming a partnership with a new partner (Model 2, Table 9.10).

Despite the slight alteration in the categories of the employment and social class variables and not including ethnicity in the model, the odds ratios and patterns of these across the variables for each exit status in Model 1 remain similar to those predicted by the model shown in Table 9.8. Therefore, it is legitimate to compare the estimates from the smaller sample not including the women who reconciled with their previous partner (Model 2) to the estimates from this model (Model 1).

Table 9.10 Odds ratios from the multinomial logistic model of repartnering excluding those returning to a previous partner (pooled sample)

Explanatory variables	Marry (Model 1)		Cohabit (Model 1)		Marry (Model 2)		Cohabit (Model 2)	
	Odds ratio	C.I.	Odds ratio	C.I.	Odds ratio	C.I.	Odds ratio	C.I.
Intercept	0.09***	0.02-0.36	0.23***	0.11-0.48	0.02***	0.00-0.17	0.21***	0.10-0.47
Time								
0-1 (r)	1.00		1.00		1.00		1.00	
1-2	0.74	0.38-1.45	0.68	0.41-1.10	1.11	0.41-2.97	0.67	0.39-1.12
2-3	0.40*	0.15-1.06	1.12	0.69-1.83	0.85	0.25-2.88	1.19	0.71-1.97
3-4	0.10**	0.01-0.77	0.91	0.51-1.62	0.27	0.03-2.15	0.96	0.53-1.75
4-5	0.15*	0.02-1.14	0.90	0.46-1.78	0.39	0.05-3.16	0.91	0.45-1.85
5-6	0.65	0.18-2.31	0.69	0.30-1.59	1.07	0.22-5.26	0.73	0.31-1.71
6-7	0.34	0.04-2.63	0.42	0.12-1.40	0.75	0.09-6.28	0.45	0.13-1.50
7-9	0.59	0.13-2.71	0.38	0.11-1.26	1.32	0.26-6.70	0.40	0.12-1.36
Age								
16-24 years (r)	1.00		1.00		1.00		1.00	
25-29 years	0.96	0.39-2.40	1.15	0.70-1.89	1.57	0.51-4.84	1.22	0.71-2.08
30-34 years	0.41*	0.16-1.07	0.42***	0.23-0.74	0.57	0.15-2.10	0.43***	0.23-0.79
35+ years	0.31**	0.12-0.80	0.34***	0.19-0.61	0.20**	0.04-0.99	0.35***	0.19-0.65
Type lone mother								
Prev. married (r)	1.00		1.00		1.00		1.00	
Prev. cohabiting	0.23***	0.10-0.55	1.16	0.74-1.82	0.63	0.22-1.81	0.90	0.55-1.45
Never-married	0.15***	0.05-0.48	0.72	0.38-1.35	0.52	0.13-2.04	0.78	0.41-1.51
Number of children								
1 child (r)	1.00		1.00		1.00		1.00	
2 children	0.35***	0.16-0.77	0.92	0.60-1.41	0.44	0.14-1.35	1.04	0.67-1.63
3+ children	1.63	0.77-3.48	1.23	0.68-2.24	2.10	0.69-6.43	1.27	0.66-2.44
GHQ Score†								
1-3 (r)	1.00		1.00		1.00		1.00	
4-6	1.04	0.45-2.40	1.96***	1.28-3.01	0.80	0.23-2.82	1.93***	1.23-3.03
7-12	1.00	0.51-1.96	0.71	0.43-1.18	0.58	0.19-1.78	0.72	0.42-1.23
Social Class								
Professional/ managerial (r)	1.00		1.00		1.00		1.00	
Skilled non-manual	3.58**	1.19-10.8	0.93	0.56-1.54	3.69*	0.80-17.1	0.91	0.54-1.55
Skilled manual	4.07**	1.16-14.3	1.61	0.88-2.95	3.78	0.60-23.7	1.60	0.85-3.00
Partly skilled/ unskilled manual/Never had a job/Missing	3.70**	1.21-11.3	1.07	0.64-1.76	3.64	0.76-17.4	1.08	0.64-1.83
Employment Status†								
Employed (r)	1.00		1.00		1.00		1.00	
Unemployed/ Family Care	0.63	0.32-1.22	0.60**	0.41-0.89	0.45*	0.18-1.11	0.55***	0.36-0.83
Other	1.41	0.53-3.77	0.86	0.45-1.66	1.40	0.42-4.62	0.82	0.41-1.64

***p-value<0.01 **p-value<0.05 *p-value<0.10; †Time-varying covariates; Model 1: Log likelihood = -691.10676; Person-years = 1623 Model 2: Log likelihood = -569.52392; Person-years = 1550

Comparing these models it can be seen that in Model 2 the pattern in the odds ratios across age for each exit from lone motherhood are now the same, with a suggestion, albeit not significant, of an increase in the odds of repartnering for those aged 25-29 compared with those aged 16-24 years. The significant decrease in the odds of forming a marriage relative to remaining a lone mother for those aged 30-34 compared with those aged 16-24 is now not observed, but this is most likely as a result of the reduction in sample size meaning significant results are harder to obtain. Interestingly there is no significant effect of type of lone mother on re-marrying now. Furthermore, although the pattern across the odds suggest that the odds of re-marrying are lower for the never-married and previously cohabiting compared with the previously married, the magnitude of this difference is considerably reduced in this model compared with the estimates in Model 1.

Regarding mental health the odds now suggest those showing some signs of mental health might have lower odds of forming this type of union compared with those not showing any, although no significant differences are observed. However, the odds of remarrying relative to staying a lone mother are now significantly lower for those who are either unemployed or involved in family care compared with those who are employed. This relationship is also found with respect to forming a cohabitation in both Model 1 and Model 2, but with respect to re-marrying was previously masked in Model 1 by those returning to a former spouse.

As for the other variables, there is very little change in the patterns of odds across covariates suggesting that the relationship between these variables and repartnering holds irrespective of whether or not a lone mother is partnering with a previous partner or someone new. Although some results which were significant in Model 1 are not significant in Model 2, the patterns in odds are the same and therefore this lack of significance is likely to be a result of the smaller sample size for Model 2 and hence lack of statistical power.

9.5 Discussion of results

The aim of this chapter was to investigate the types of new unions that lone mothers formed upon repartnering, more explicitly, whether it was a cohabitation or a marriage

and particularly to investigate how the probability of entering into either of these two unions relative to remaining a lone mother might differ depending on the route of entry into lone motherhood initially.

The results from the descriptive investigation into the types of unions that were formed support previous findings of an overwhelming preference for lone mothers to enter into a cohabiting union rather than a marriage (Böheim and Ermisch, 1998; Ermisch and Francesconi, 2000b). As stated above 74 per cent of lone mothers who repartnered formed a new cohabiting union rather than a marriage and over 80 per cent of the partnerships formed by single never-married lone mothers in the sample, who were never-partnered in the majority of cases, were cohabiting relationships rather than marriages. These findings highlight the importance of taking account of the different modes of repartnering in relation to lone mothers and not just concentrating on re-marriage as some previous studies have.

The findings here suggest that there are different factors associated with repartnering in the form of a cohabitation compared with a marriage for lone mothers and supports the finding by general repartnering research, such as that of Wu and Balakrishnan (1994); De Graaf and Kalmijn (2003); Wu and Schimmele (2005), that there are different factors involved in the formation of these two types of second unions. Whilst age is an important determinant for both (re)marriage and (re)cohabiting, the other variables significant in the model are only significantly associated with one of the two exits from lone motherhood. With respect to forming a marriage, it is demographic variables that appear to be more important than socio-economic variables, with age, type of lone mother, number of children and ethnic group all significantly related to the probability of (re)marriage, but social class the only socio-economic variable to be significantly related to (re)marriage. For forming a cohabitation, apart from age only GHQ score and employment status have any significant influence over the chance of (re)cohabiting.

The results from the analysis provide some indication that those who were previously married are more likely to re-marry than other types of lone mothers. However, much of this is a result of women reconciling a marriage with a previous partner. After these women are removed from the model the difference in the probability of re-marrying between types of lone mother is reduced and no longer significant. Whether this is as a result of the reduction in sample size after removing these women meaning that there is

not enough power to determine a significant result or whether it is because these women entirely account for this higher probability remains to be seen. There is no clear indication from this study that those who were previously cohabiting are more likely to form a cohabitation than other types of lone mothers. The predicted probability is slightly higher for this group of lone mothers compared to the previously married and single never-married, but not statistically significant.

The lower odds of repartnering for those with two children compared with only one child found in the binary logistic hazard models in Chapters 7 and 8 appears in the competing risk model to be mainly a result of a significantly lower probability of remarriage for those with two children compared to those with only one child. This is not surprising given that a number of studies specifically investigating remarriage have also found a negative effect of increasing numbers of children on the chance of remarriage (Koo et al., 1984; Bumpass et al., 1990; Ermisch et al., 1990; Smock, 1990; Ermisch and Wright, 1991). After removing those re-marrying a previous partner from the model this relationship becomes insignificant. However, the estimated odds for this group are still lower, albeit not significantly, suggesting it might be that the smaller sample size of Model 2 means that a statistically significant difference between groups can no longer be determined.

A lone mother's mental health has no impact on her forming a marriage whether or not the women remarrying a previous partner are included in the model. Interestingly, though, a trend in the odds of remarriage is found after those returning to a previous marriage are removed. Although this is not significant there is some indication that the odds of forming a marriage with someone new might decline with increasing mental health problems. This pattern is different to that found between mental health and forming a cohabitation where the estimated probability of forming a cohabitation is significantly higher for those with a score over the threshold of four, but under seven compared with those with a score of 0-3. It is therefore this relationship between mental health and forming a cohabitation that was behind the relationship between repartnering and mental health found in Chapters 7 and 8.

Results from this analysis suggest the relationship previously observed in the binary logistic hazard analysis of a decrease in odds for those who are unemployed or involved in family care compared with those in employment is as a result of a significant

reduction in the probability of forming a cohabitation for those who are involved in family care compared with those who are employed. No significant difference between the probability of forming a cohabitation for the unemployed compared with those employed is observed, however, this is likely to be a result of the extremely small sample size in this category now it is split into the two exit types. Interestingly, it appears that the probability of forming a marriage with someone new is also significantly lower for those either unemployed or involved in family care compared with those in employment, something which was masked when those who remarried the same partner were included in the model. This perhaps provides further support for the contention that it is a result of fewer meeting opportunities that lone mothers out of employment have lower chances of repartnering.

Although social class was not significantly associated with repartnering overall it was found to be significant after allowing for the different types of exit from lone motherhood. Here the results indicate that the probability of forming a marriage is lower for those in professional or managerial occupations compared with those in all other occupations. This contrasts with previous studies investigating remarriage which have found if anything a positive effect of higher social class on repartnering. When considering just those remarrying someone new the trend in the odds remains the same, although only a significant difference between those in non-manual occupations and those in professional/managerial occupations is observed. Overall this relationship might be explained by the fact that those in professional or managerial occupations have less economic need to remarry perhaps than those in other occupations which might be lower paid.

Chapter 10

The association between repartnering and economic, demographic and health transitions

This chapter focuses on transitions occurring around the time of repartnering that are likely to impact upon the overall well-being of lone mothers. The transitions considered can be grouped into three key domains: economic, demographic and health. The first section of the chapter presents descriptive statistics from the sub-sample of lone mothers that were found to repartner in earlier analyses. These provide an indication of some of the transitions which may be associated with repartnering. The subject of the second section is to formally test the association of repartnering with a number of these transitions, whilst controlling for other factors. The selection of the samples under analysis, the chosen variables for the analysis and the procedure for dealing with missing data across the variables are firstly described. Following this the statistical methods are outlined. Finally, the results are presented and discussed.

10.1 Descriptive statistics of the BHPS sub-sample of lone mothers that were found to repartner

This section takes the sub-sample of lone mothers which were found to repartner in the previous analyses (N=218) and examines demographic, economic and health transitions between the year prior to (t_{-1}) and the year of repartnering (t). This provides some indication of the changes in these domains which might be associated with repartnering. However, because the sample size is relatively small, the findings must be interpreted with caution.

10.1.1 Economic transitions

It is of interest given the findings presented in the literature review concerning income changes and repartnering to investigate whether any increase in annual income occurred between the year prior to (t_{-1}) and the year of repartnering (t). However, a considerable amount of missing data was present in the variable measuring equivalised and deflated annual household income, a likely result of the fact that over 35 per cent of the new partners did not provide a full interview. Therefore, rather than considering transitions in household income level, a subjective measure of financial well-being derived from responses to the question "Would you say that you yourself are better off, worse off or about the same financially than you were a year ago?" was utilised. Examining this variable at time t will provide some indication of any change in financial status for the lone mother which may be as a result of the new partner entering the household. Given that we have no information on the distribution of economic resources within the household and therefore any improvement in income level does not necessarily result in a lone mother becoming better off financially as an individual, then a subjective income measure such as this may be more useful in identifying the financial benefits, if there are any, from repartnering.

Table 10.1 below presents the frequency distribution of responses to the subjective financial well-being question. Here it can clearly be seen, that a significant proportion - nearly half – claim to feel 'better off' financially in the year they have also been found to repartner, compared with the year before. Interestingly, though, just over one in five consider themselves to actually be worse off than the year before. The distribution across this variable is also very similar to that found in Bradshaw and Millar's (1991) study where 52 per cent of those repartnering were found to feel better off as a result of repartnering, but 26 per cent felt worse off. Therefore, repartnering does appear to signal a time of financial changes, mostly for the better, but clearly not always. What is not clear from Table 10.1, however, is how many women over this same time period were also found to enter employment, which as was found in the literature review is significantly associated with an improvement in financial well-being.

Table 10.1 Transitions in subjective financial well-being between t_{-1} and t for those found to repartner between t_{-1} and t

Change in financial situation	Frequency	Percent
Better off	99	45.6
Worse off	47	21.7
About the same	71	32.7
Total	217	100

Table 10.2 considers a repartnered lone mother's change in financial situation by her change in employment situation over the same time period (between t_{-1} and t). From this it can be seen that nearly 20 per cent of those who felt 'better off' were also found to move into employment over the same time period. However, over a quarter of those claiming to feel 'better off' financially were lone mothers that remained out of work between the two survey years. Therefore certainly for these women, the financial improvement cannot be attributed to any change in employment situation, such as a move into employment or an increase in number of hours worked.

Table 10.2 Change in financial situation by employment transition (between t_{-1} and t) for those found to repartner over the same time period

Change in financial situation $t_{-1} \rightarrow t$	Employment transition $t_{-1} \rightarrow t$				Total
	Moved into employment	Left employment	Stayed out of work	Stayed in work	
Better off	19 (19.2)	5 (5.1)	26 (26.3)	49 (49.5)	99 (100)
Worse off	6 (12.8)	6 (12.8)	16 (34.0)	19 (40.4)	47 (100)
About the same	4 (5.6)	7 (9.9)	30 (42.3)	30 (42.3)	71 (100)
Total	29 (13.4)	18 (8.3)	72 (33.2)	98 (45.2)	217 (100)

Table 10.3 examines changes in receipt of Income Support between t_{-1} and t and shows that just over 50 per cent of lone mothers who repartnered and were in receipt of Income Support at t_{-1} were no longer receiving this benefit at time t. Very few women made transitions in the other direction with only five per cent of those who repartnered and who were not in receipt of Income Support at t_{-1} found to be in receipt of this benefit at time t. Closer examination of the 50 cases where repartnering seemed to result in a move off Income Support revealed that nearly a quarter of this group also moved into employment between t_{-1} and t, but the majority (64 per cent) either remained out of work, or even left employment over this time. It would appear therefore, that in many cases it is the arrival of the new partner which results in the end of Income Support receipt, rather than a move into employment for the lone mother herself.

Table 10.3 Transitions in receipt of Income Support between t_{-1} and t for those also repartnering between t_{-1} and t

Receipt of income support t_{-1}	Receipt of income support t		Total
	No	Yes	
No	115 (95.0)	6 (5.0)	121 (100)
Yes	50 (52.1)	46 (47.9)	96 (100)
Total	165	52	217

Turning now to look at transitions in employment status around the time of repartnering (Tables 10.4 and 10.5), it can be seen that those in employment in the year prior to repartnering are less likely to move out of this category than those lone mothers in other categories in this year. Of the people who repartnered and who are not in employment at time t_{-1}, nearly 29 per cent have moved into employment by the following year.

Table 10.4 Transitions in employment status between t_{-1} and t for those also repartnering between t_{-1} and t

Employment status t_{-1}	Employment status t				Total
	Employed	Unemployed	Family care	Other	
Employed	98 (83.8)	2 (1.7)	14 (12.0)	3 (2.6)	117 (100)
Unemployed	2 (22.2)	1 (11.1)	6 (66.7)	0 (0.0)	9 (100)
Family care	20 (27.4)	1 (1.37)	51 (69.9)	1 (1.4)	73 (100)
Other[1]	7 (36.8)	0 (0.0)	4 (21.1)	8 (42.1)	19 (100)
Total	127	4	75	12	218

[1]Including those on maternity leave, full-time students, long-term sick/disabled, on a government training scheme or other

Table 10.5 Frequency distribution of employment transitions (between t_{-1} and t) for those repartnering over the same time period

Employment transition	Frequency	Percent
Moved into employment	29	13.3
Left employment	19	8.7
Stayed out of work	72	33.0
Stayed in work	98	45.0
Total	218	100

Considering the proportions making each transition out of all lone mothers who repartnered (Table 10.5) it can be seen that the majority either stayed in employment or stayed out of employment between the two survey years. Overall, the percentage of lone mothers in employment increased from 54 per cent in the year prior to repartnering to 58 per cent in the following year when they had repartnered.

10.1.2 Demographic transitions

Previous studies have found that repartnering is associated with a higher chance of a household move. Examining Table 10.6 below it can be seen that a considerable proportion of those found to repartner – just over 40 per cent – are also found to experience a household move over the same observation period.

Table 10.6 Frequency distribution of household moves (between t$_{-1}$ and t) for those repartnering over the same time period

Household move t$_{-1}$ → t	Frequency	Percent
Non-mover	128	58.7
Mover	90	41.3
Total	218	100

Considering the tenure of lone mothers between t$_{-1}$ and t, for those who also experienced a household move over this period (Table 10.7 below), it can be seen that over half of those living in either Local Authority/Housing Association rented housing or in other rented housing at t$_{-1}$ had moved into owner occupied housing by time t. Moves out of owner occupation and into other types of housing were far less common with only 21 per cent of repartnered lone mothers living in owner occupied housing at t$_{-1}$ making this move.

Table 10.7 Transitions in household tenure between t$_{-1}$ and t for those repartnering over the same time period

Household tenure, t$_{-1}$	Household tenure, t			Total
	Owner occupied	LA/Housing Assoc.	Other rented	
Owner occupied	26 (78.8)	4 (12.1)	3 (9.1)	33 (100)
LA/Housing Assoc.	19 (54.29)	13 (37.1)	3 (8.57)	35 (100)
Other rented	10 (52.6)	5 (26.3)	4 (21.1)	19 (100)
Total	55	22	10	87

Another demographic change which has been found previously to be associated with repartnering is a change in the number of children in the household, particularly the arrival of a new baby. Table 10.8 displays the frequency of lone mothers which have either gained or lost dependent children from the household between t$_{-1}$ and t. It can be seen that less than 20 per cent have experienced a change in the number of dependent children, but overall a higher proportion have gained at least one child (nearly 14 per

cent) compared with those who have fewer children at the time of repartnering (approximately five per cent).

Table 10.8 Transitions in the number of dependent children in the household (between t_{-1} and t) for those repartnering over the same time period

Change in number of children	Frequency	Percent
Fewer children	11	5.1
More children	29	13.8
No change in no. children	178	81.2
Total	218	100

An analysis of the new children that have entered the household for 29 of the lone mothers (Table 10.9) reveals that over three quarters of these new children are new joint babies[20].

Table 10.9 Characteristics of new children entering the household at the time of repartnering

Additional children	Frequency	Percent
New joint baby/babies	22	75.9
Returning natural child/children	2	6.9
Step child/children	4	13.8
New joint baby & step child	1	3.4
Total	29	100

10.1.3 Health transitions

Turning now to transitions in health status we examine the change in a lone mother's mental health, as measured by their GHQ score (Table 10.10 and Table 10.11). As with employment status a high proportion of those in the category 0-3 in the year prior to repartnering are still in this category the following year (73 per cent). However, a high proportion of those lone mothers in categories above the threshold of four at time t_{-1} have moved into the category 0-3 by the next year once they have also repartnered. For those beginning in the 4-6 category the percentage making this move is particularly high at 76 per cent, although still nearly 42 per cent of those in the lowest category have

---

[20] Where the lone parent and new partner are recorded as the natural parents of the child and the child is aged zero at time t.

moved into the highest category by the following year. Overall, 60 per cent of those
with GHQ scores above four in the year prior to repartnering have moved into the 0-3
category by the following year. Again, considering the frequency distributions of
transitions overall (Table 10.11) it can be seen that the majority of people stay in the
same category between survey years, but a higher proportion appear to have an
improvement in mental health compared with those who are found to have a
deterioration.

**Table 10.10 Transitions in mental health status between t_{-1} and t for those
repartnering over the same time period**

GHQ Score t_{-1}	GHQ score t_1			Total
	GHQ 0-3	GHQ 4-6	GHQ 7-12	
GHQ 0-3	96 (73.3)	12 (9.2)	23 (17.6)	131 (100)
GHQ 4-6	32 (76.2)	3 (7.1)	7 (16.7)	42 (100)
GHQ 7-12	15 (41.7)	8 (22.2)	13 (36.1)	36 (100)
Total	143	23	43	209

**Table 10.11 Frequency distribution of mental health transitions (between t_{-1}
and t) for those repartnering over the same time period**

Mental health transition	Frequency	Percent
Moved from 4+ to 0-3	47	22.5
Moved from 0-3 to 4+	35	16.8
Stayed either 4+ or 0-3	127	60.8
Total	209	100

10.1.4 Summary of descriptive findings

Supporting findings from previous research, the descriptive analysis of the lone mothers
found to repartner in the BHPS has provided some evidence of an association between
repartnering and improvements in economic circumstances. Nearly half of the
repartnered sample was found to feel 'better off' and over half of those initially in
receipt of Income Support had moved off this benefit in the year they repartnered.
Interestingly, despite a number of these transitions being accompanied by a move into
employment, this was certainly not the case for the majority. As expected, this analysis
suggests that repartnering may also be associated with a household move, which for
those originally living in rented accommodation (be it rented from the local
authority/housing association or another source) more often than not involved a move

into owner occupation. Although the majority of lone mothers that repartnered had no change in the number of dependent children living with them, around a fifth experienced a change which was more likely to be an increase in number than a decrease. As found by previous studies, where more children were present in the household these were more likely to be new joint babies than step children or natural children returning to the household. In terms of changes in health around the time of repartnering, around 40 per cent were found to have a significant change in their mental health status (as determined by crossing the threshold) with a higher proportion having significant improvements in their mental health, rather than deterioration. There is some indication, therefore, that repartnering may lead to improved mental health outcomes as suggested by previous research.

However this simple descriptive analysis could not determine whether these transitions occurring between the year prior to and the year of repartnering are significantly related to repartnering itself, or whether transitions such as these occur just as frequently between any years spent as a lone mother regardless of whether the lone mother repartners or not. In other words, is repartnering significantly associated with changes in these three domains? In order to identify statistically significant associations with repartnering the next section uses a multivariate framework whereby a series of logistic regressions were employed to statistically test the association of repartnering with transitions in the three key domains whilst controlling for other associated covariates.

10.2 Determinants of transitions within the three domains: Economic, demographic and health

10.2.1 The samples for analysis

In order to investigate factors associated with transitions within the three domains it was necessary to slightly adjust the structure of the dataset of lone mothers used in the previous analyses. This time rather than investigating the factors associated with the *time* to repartnering, we want to examine whether transitions occurring between two successive time points (t_{-1} and t) are significantly related to repartnering, or whether transitions such as these occur just as frequently between any years spent as a lone

mother regardless of whether or not the lone mother is also found to repartner between these years.

A person-period file of responses from lone mothers observed to enter lone motherhood over the life of the panel had already been created for previous analyses (see Section 5.3). The first step in the process was to create new dependent variables for each of the models (see Table 10.12 below) and adjust a number of the explanatory variables used in previous analyses for use as independent control variables in the logistic regressions.

The first model investigates the association of repartnering with improvements in the subjective financial well-being of a lone mother. For this model, the dependent variable indicates those who consider themselves to be 'better off' financially with respect to the year before compared with a reference of those who do not (which includes both those who think their situation has either worsened or who consider their financial situation has not changed). The second set of models investigate whether repartnering is associated with demographic changes. In this domain the binary dependent variables indicate an increase in number of dependent children in the household; a household move; and lastly, a move into owner occupation for those living in Local Authority, Housing Association or other rented housing at time t_{-1}. The third set of models examines how repartnering is associated with a change in the mental health of a lone mother. Firstly the association of repartnering with a transition from a category of the GHQ score above the threshold of four (scores between 4 and 12) into the category below this threshold (including scores between 0 and 3) for those scoring four or more on the scale at the first time point is investigated. Secondly, for those scoring three or below in the initial time point, a logistic regression is used to predict factors, including repartnering, which might be associated with scoring four or above at the second time point.

Table 10.12 Dependent variables for the analyses of economic, demographic and health transitions

Variable	Coding	Notes
Improvement in financial situation	0 = No 1 = Yes	Where 1 refers to all respondents that answered they felt better off at time t and 0 refers to those who responded they were either worse off or had experienced no change
Increase in number of children	0 = No 1 = yes	Where 1 refers to all those found to have a larger number of own dependent children in the household at time t compared to t_{-1} and 0 includes those with less, no change or no dependent children left in the household.
Household move	0 = No 1 = Yes	Where 1 refers to those found to have moved house in the previous year measured at t and 0 is all those that did not experience a move.
Move into owner occupation	0 = No 1 = Yes	Where 1 refers to all those that moved from LA/HA or other rented housing into owner occupation between t_{-1} and t and 0 those that stayed in LA/HA or other rented housing over this time.
Change in mental health Improvement	0 = No 1 = Yes	Where 1 refers to all those that moved from categories 4-6 and 7-12 at time t_{-1} into the 0-3 category at time t and 0 those that stayed at or above the threshold of 4.
Deterioration	0 = No 1 = Yes	Where 1 refers to all those that moved from 0-3 at time t_{-1} to 4-6 or 7-12 at time t and 0 those that stayed below the threshold of 4.

Therefore, in this analysis we are simply interested in transitions in these variables between two successive points in time. For example, to create the dependent variable indicating an increase in the number of children we take each year for each lone mother and compare the number of children in the household in that year with the number present in the year before. Therefore, the dependent variable for a lone mother at time 1 in the person-period file (which refers to one year since becoming a lone mother) will

indicate a change in number of children between the survey year they were found to have entered lone motherhood and that survey year. Other 'change' variables indicating other transitions of interest were also created for use as independent variables. Finally, the independent control variables, which referred to characteristics of the lone mothers measured at the first of these two successive time points over which the dependent variable was measured, were created by lagging variables which had already been created in the person-period file.

An illustration of the new data structure can be seen in Figure 10.1 below (adapted from Menard, 2002, Figure 5.2, p.65). As Menard (2002) describes, the X's in this table represent an observation on a specific case at a specific time for a specific variable, with $i = 1,2,…N$ cases, $t = 1,2,…T$ periods, and $k = 1,2,…K$ variables (represented by the subscripts to each X). The variables X_1, X_2 etc refer to such things as age, number of children and length of time spent as a lone mother all measured at the first of the two successive time points. As in any standard dataset the columns represent variables and the rows represent cases, however since the BHPS is a panel survey, which follows up the same individuals over time, this means that the same cases may be repeated up to T times (Menard, 2002). For example a lone mother that was interviewed in each of the first five waves of the panel would appear in the dataset four times. The advantage of this data structure, as described by Menard (2002; 65), is the greater statistical power and greater reliability of estimation, but, this is "coupled with the disadvantage that in any analysis, parameter estimation may be confounded by correlations between either or both of true scores or errors (a) within cases over time or (b) between cases measured at the same time." In order to account for this clustering of observations within cases, and hence non-independence of observations, robust standard errors were calculated using Stata (see Section 10.2.4 for a full explanation).

Figure 10.1 Data structure for the analysis of economic, demographic and health transitions

		Variable 1: X_1	Variable 2: X_2	Variable 3: X_3	Variable 4: X_4.....	Variable K: X_k	Dependent variable: Y
Case 1	Time 1	X_{111}	X_{112}	X_{113}	X_{114}	X_{11K}	Y_{11}
	Time 2	X_{211}	X_{212}	X_{213}	X_{214}	X_{21K}	Y_{21}
	.						
	.						
	.						
	Time T	X_{N11}	X_{N12}	X_{N13}	X_{N14}	X_{N1K}	Y_{N1}
Case 2	Time 1	X_{121}	X_{122}	X_{123}	X_{124}	X_{12K}	Y_{12}
	Time 2	X_{221}	X_{222}	X_{223}	X_{224}	X_{22K}	Y_{22}
	.						
	.						
	.						
	Time T	X_{N21}	X_{N22}	X_{N23}	X_{N24}	X_{N2K}	Y_{N2}
	.						
	.						
	.						
Case N	Time 1	X_{1T1}	X_{1T2}	X_{1T3}	X_{1T4}	X_{1TK}	Y_{1T}
	Time 2	X_{2T1}	X_{2T2}	X_{2T3}	X_{2T4}	X_{2TK}	Y_{2T}
	.						
	.						
	.						
	Time T	X_{NT1}	X_{NT2}	X_{NT3}	X_{NT4}	X_{NTK}	Y_{NT}

Source: Adapted from Menard (2002) Figure 5.2, p65.

The next step was to extract the four samples from this dataset upon which the logistic regressions were to be implemented. This was necessary due to varying amounts of missing data on each of the dependent variables (See Table 10.13). For example, for the analysis investigating factors associated with an increase in the number of children there was no missing data on the variable indicating number of children in any survey year and therefore there was no missing data on the variable indicating a transition in the number of children. However, for the analysis of a change in mental health status there was already some degree of missing data present before the variable indicating a transition in a lone mother's mental health was created. Therefore, for a number of cases it was not possible to determine any transition due to missing data on either or both of the successive years over which the transition was to be measured. The final sample sizes (after the deletion of missing data due to item non-response on the dependent and independent variables) and the distribution of cases across the dependent variables can be seen in Table 10.14 below.

Table 10.13 Percentage of missing data on dependent variables for analyses of economic, demographic and health transitions

Dependent variable	Quantity of missing data (%)
Improvement in financial situation	0.5
Increase in number of children	0.0
Household move/move into owner occupation	0.0
Improvement/deterioration in mental health	3.5

Table 10.14 The samples and dependent variable distributions for analyses of economic, demographic and health transitions

Sample size	Frequency distribution of dependent variable	
	0	1
Financial improvement		
1,598 person years	1,169	430
Increase in number of children		
1,616 person years	1,545	71
Household move		
1,598 person years	1,308	309
Move into owner occupation		
868	663	205
Mental health improvement		
532 person years	240	292
Mental health deterioration		
1,046 person years	842	204

10.2.2 The variables included in the analysis

A number of independent variables were used in the analysis and can be seen in Table 10.15 below. The associated coding for these variables can be found in Appendix C. Both the demographic and control variables are measured at time t_{-1}. The change variables refer to a change occurring between t_{-1} and t.

Table 10.15 Explanatory variables used in the analyses of economic, demographic and health transitions

Explanatory Variables:	
Demographic control variables	Age Time spent as a lone mother Number of children Age of youngest child Type of lone mother Ethnic group membership Sample origin Time period
Socio-economic control variables	Housing tenure Social class Highest academic qualification Employment status Financial situation Receipt of income support GHQ score Region
Change variables (Increase in number of children)	Repartner Employment transition Change in financial situation Change in receipt of income support Change in mental health Individual move
Change variables (Financial improvement)	Repartner Employment transition Change in number of children Change in receipt of income support Improvement in mental health Individual move
Change variables (Mental health improvement & deterioration)	Repartner Employment transition Change in number of children Change in receipt of income support Change in financial situation Individual move

10.2.3 Missing data

As well as issues with missing data on two of the dependent variables, a number of the independent variables were found to have missing data present. Due to the different

numbers of cases in each sample the quantity of missing data as a result of item non-response varied between the samples as can be seen in Appendix D. A procedure of listwise deletion was used for each sample where the loss of data on a particular variable was less than two per cent. For variables where the loss of data was more substantial a missing category for that variable was created. Overall the proportion of missing data on independent variables that was deleted from each sample amounted to less than five per cent of cases. See Section 4.5.3 for a justification of this method of dealing with missing data.

10.2.4 Methodology

A key aim of this chapter is to investigate if those lone mothers that repartner are more likely than those remaining single to experience changes in three aspects relating to their well-being over the same period that they repartner. As described in Section 10.2.1 above, we want to examine whether transitions occurring between two successive survey years are significantly related to repartnering itself, or whether transitions such as these occur just as frequently between any years spent as a lone mother, regardless of whether or not the lone mother is also found to repartner between these years. A logistic regression analysis will allow identification of explanatory variables statistically associated with the transition captured by the response variable. However, a clear caveat with this analysis is that of endogeneity. Given that the change variables detailed in Table 10.15 refer to changes occurring over the same period of time as the response variable it is not possible to determine the direction of the relationship between the two variables. The implication of this is that the results below must be interpreted with a level of caution.

Logistic regression

The response variables (Y) in each analysis are binary variables with values of $Y = 0$ or 1 indicating the occurrence or non-occurrence of a transition in each particular domain.

Logistic regression analysis is used to model the probability of the occurrence of a transition for an individual (i.e. $\Pr(y_i=1)$), where this probability is denoted as π_i, using a set of K explanatory variables ($X_{1i}, X_{2i}, \ldots, X_{ki}$). Although a standard ordinary least

squares (OLS) regression approach (where the model is of the form as shown below in equation 10.1) could be used, it is possible that the predicted values of π_i will be outside of the [0, 1] interval, making interpretation problematic given that π_i is a probability.

$$E(y_i) = \pi_i = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + _{...} + \beta_k X_{ki} \tag{10.1}$$

In order to gain sensible values for π_i a transformation of π_i is required, which is referred to as the link function. A commonly used transformation, and the one used here, is the logit transformation. This is simply the logarithm of the odds of $y_i=1$. Using this function the logistic regression model for an individual i, (where $i = 1,...N$) can now be written as:

$$\log\left(\frac{\pi_i}{1-\pi_i}\right) = \text{logit}(\pi_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + _{...} + \beta_k X_{ki} \tag{10.2}$$

Analysis of cluster correlated data

As previously mentioned in Section 10.2.1, the nature of the data structure is such that the same respondents may appear in the dataset up to thirteen times. Therefore, with repeated measures data such as this, the model shown in (10.2) is actually of the form:

$$\text{logit}(\pi_{it}) = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + _{...} + \beta_k X_{kit} \tag{10.3}$$
$$i = 1,..., N \qquad t = 1,..., T$$

Where i refers to the individual respondents and t the time periods.

A key issue when it comes to the analysis of such data is that although observations on particular respondents are taken at different time points, the outcomes are likely to be correlated, because the observations have all come from the same respondent. That is, the presence of unmeasured individual factors will lead to positive correlation in the error terms. Hence the assumption of independence of observations required in the logistic regression model is violated. Analyses which are carried out and fail to account for this correlation will generally underestimate the true variance and lead to test

statistics with inflated Type I errors (a type I error is when a true null hypothesis is incorrectly rejected) (Williams, 2000).

This analysis uses robust variance estimation in Stata version 9 (StataCorp, 2005) to adjust for the within-cluster correlation (where clusters represent individuals). [21] Known as the Huber/White/Sandwich estimate of variance, this estimator specifies that the standard errors allow for any correlation within individuals (but still assume independence between individuals), thereby relaxing the assumption of independence of observations. According to Williams (2000; 645) this estimator is "unbiased for cluster-correlated data."

The use of this robust variance estimation means however that standard likelihood ratio tests cannot be used to select variables into the model since the likelihood used for estimation is not 'true' likelihood. In order to select significant variables into the model the Wald test was therefore used. The Wald test statistic is the square of the ratio of the estimate of the coefficient to its standard error:
$$\left(\frac{b_1}{s_{b_1}}\right)^2$$

If the null hypothesis that $\beta_1 = 0$ is true than this statistic has a chi-squared distribution with k-1 degrees of freedom.

Interpretation of the model estimates

The probabilities of a transition occurring for different groups of individuals as defined by different categories of the explanatory variables can be estimated using the probability form of the logistic regression model as shown in (10.4).

$$\pi_i = \frac{\exp(\beta_0 + \beta_1 x_{1it} + ... + \beta_k x_{kit})}{1 + \exp(\beta_0 + \beta_1 x_{1it} + ... + \beta_k x_{kit})} \tag{10.4}$$

Another method of interpreting the model estimates, and the one which will be used for the most part below is to use odds ratios. These are calculated by simply exponentiating the coefficients estimated by the logit form of the logistic regression model. The odds ratio for a particular category of an independent variable is then interpreted as the

---

[21] Another method for dealing with cluster-correlated data would have been to use a random-effects model. However, it should be noted here that the parameter estimates and standard errors obtained using a random-effects model were similar to those obtained using this method.

estimated odds of having a transition (such as an improvement in financial situation) relative to the odds of the reference category for that same variable.

Before constructing the multivariate models within each domain, a bivariate analysis was conducted to determine the factors which were likely to be important in the models. Within each domain the dependent variable was cross-tabulated with each of the independent variables. Chi-squared tests were then carried out to determine the statistical significance of these associations. The results of the bivariate analysis are discussed in the next section.

10.2.5 Bivariate analysis results

Table 10.16 below shows a summary of the results of the bivariate associations between the explanatory variables and each dependent variable (the full results can be seen in Appendix E). For an improvement in financial situation the demographic variables appear to be less important with only number of children, age of youngest child and sample origin achieving significance and even then only at the ten per cent level. Here it was those lone mothers who had only two children, whose children were younger and who were from one of the extension samples that had higher chances of having an improvement in financial situation. In terms of the socio-economic variables, it was those in higher professional/managerial occupations, with higher academic qualifications, who were not working in family care, who were not receiving Income Support and who were living in southern regions that were more likely to claim they felt 'better off' compared to the year before. Again, as with an increase in number of children, repartnering is highly associated with lone mothers feeling 'better off'. Those moving into employment, moving off Income Support, who have an improvement in mental health and who move house are also those lone mothers who are more likely to feel 'better off'.

Considering an increase in number of children it can be seen that many of the explanatory variables are independently associated with this change. Beginning with the demographic variables, it was those lone mothers who were younger, who had spent less time as a lone mother, who had children under age five, who were single and never-married and making these transitions at early time periods, particularly between 1995 and 1997 that were more likely to have an increase in the number of children in the

household than others. Turning to the socio-economic variables, higher proportions of new children are found for those in socially rented housing, in lower social classes, with fewer education skills, unemployed or in family care and in receipt of Income Support. Finally, considering the change variables, as might be expected there is a highly significant association between repartnering and a new child entering the household. In addition to this, lone mothers that were more likely to have a new child in the household were also more likely to experience a move out of employment over this same time period, to be in receipt of Income Support at one or both of the two time periods and to have moved. None of the variables relating to mental health or self-perceived financial situation, or changes in these variables were significantly associated with an increase in number of children in the household.

Aside from ethnic group and sample origin, all demographic variables are highly associated with a household move. The results suggest that those who are younger, who have spent less time as a lone mother and have fewer and younger children are more likely than others to move. Single never-married mothers have a higher propensity to move than other types of lone mothers. Higher proportions are also found to move between 1991 and 1997 compared with 1998 onwards. Socio-economic variables appear to be less important, with only housing tenure, social class and GHQ score significantly associated with a household move. Those in other rented accommodation are the most likely to move, as are those in lower social classes. With respect to GHQ score, the results indicate that those with scores between four and six are more likely to experience a household move compared with those scoring above or below these figures. The least likely to move are those with scores between zero and three. All change variables except that relating to an improvement in mental health are highly significantly associated with a household move. Independent effects indicate that those repartnering, leaving employment, having more children, and either moving onto or off of Income Support are the most likely groups to move house. Finally, those becoming either better off or worse off over the same period are more likely to have experienced a household move over this period than those who consider their finances to be about the same.

Changing the response variable to examine the independent effect of each explanatory variable on moving into owner occupied accommodation, conditional on living in either Local Authority/Housing Association rented housing or other rented housing at time t_{-1}

reveals quite different results to that obtained above for any type of household move. This time the demographic variables are less important, with only age and type of lone mother significantly associated with this type of move at the less than five per cent level. Further to this, the results indicate that there is a higher chance of making this move as age increases, the opposite of what was indicated for any household move and the previously married are now the most likely to move, followed by those previously cohabiting and lastly the never-married. At the ten per cent level, age of youngest child and sample origin are also significant. Again, the effect is the opposite of that found previously, with higher percentages of those with older children moving this time compared with those with younger children. Those in the extension samples appear to be less likely to move than those in the original Essex sample.

The results for the socio-economic variables reveal that the type of housing at time t_{-1} is still important, with those in other rented housing again the more likely to move than those in Local Authority/Housing Association rented housing. Social class is now only important at the ten per cent level, with those in higher social classes the more likely to move than those in lower social classes. Education is important, with those with higher academic qualifications more likely to move than those with lower levels of education. Those who are employed appear to be more likely to make this type of move, than those in unemployed, family care or other categories. However, there is a problem of small cell counts for both the unemployed and 'other' employment categories for this variable. Finally, those in receipt of Income Support appear to be significantly less likely to experience this type of household move compared with those in receipt of this benefit.

With respect to the change variables, again those repartnering are more likely to experience this type of move compared with those not repartnering. Those staying in or moving into employment are more likely to move into owner occupation compared with those staying out of or leaving employment, although the categories indicating a transition in employment status are both very small. Staying off or leaving Income Support is associated with experiencing this type of move, as is considering one's financial situation to have improved.

Table 10.16 Bivariate associations of the explanatory variables with economic, demographic and health transitions

Variables	Association between each explanatory variable and the dependent variables ***p<0.01 **p<0.05 *p<0.10					
	Improvement in financial situation	Increase in number of children	Household move	Move into owner occupation	Improvement in mental health	Deterioration in mental health
Demographic variables						
Age	NS	***	***	**	*	NS
Time spent as a lone mother	NS	**	***	NS	NS	NS
Number of children	*	NS	***	NS	NS	NS
Age of youngest child	*	***	***	*	NS	NS
Type of lone mother	NS	***	***	***	NS	NS
Ethnic group membership	NS	NS	NS	NS	NS	*
Sample origin	*	NS	NS	*	NS	NS
Time period	NS	**	***	NS	NS	NS
Socio-economic variables						
Housing tenure	NS	***	***	***	NS	NS
Social class	***	***	**	*	NS	NS
Highest academic qualification	***	***	NS	***	NS	NS
Employment status	**	***	NS	***	NS	NS
Financial situation	NS	NS	NS	NS	***	*
Receipt of Income Support	*	***	NS	***	NS	NS
GHQ score	NS	NS	**	NS	***	***
Region	**	NS	NS	NS	NS	*
Change variables						
Repartner	***	***	***	***	NS	**
Employment transition	***	***	**	***	NS	NS
Change in number of children	NS	-	***	NS	NS	NS
Change in receipt of Income Support	***	***	***	***	NS	NS
Change in financial situation	-	NS	***	**	***	***
Improvement in mental health	**	NS	NS	NS	-	-
Individual move	**	***	-	-	NS	NS

Considering the bivariate associations of the explanatory variables with an improvement in mental health we find those aged 35-39 years to be less likely to experience an improvement in mental health. The only socio-economic variable to be associated with an improvement in mental health is financial situation with those 'just about getting by' having the highest chance of an improvement in mental health and those experiencing financial difficulties being the least likely. With respect to the change variables it is a change in financial situation for the better which appears to have a stronger independent association with an improvement in mental health. The proportion seeing an improvement in their mental health over the time period is unsurprisingly smallest for those that consider their financial situation to have worsened over the same period of time. Repartnering is not found to have any association with an improvement in mental health.

The bivariate associations between the explanatory variables and a deterioration in mental health suggest that there is a weak association between experiencing a deterioration and ethnicity, with higher proportions of white lone mothers experiencing this transition than those belonging to other ethnic groups. Again financial situation is important, although this time the association is only significant at the ten per cent level. The association suggests that those having financial difficulties are more likely to make this transition than those with no financial problems. Region is also found to have a weak association with a deterioration in mental health, with higher proportions of those living in Southern regions or regions in Wales, Scotland or Northern Ireland experiencing this transition than those in Northern regions. Interestingly, repartnering is found to be associated with a deterioration in mental health and this is significant at the five per cent level. Around 27 per cent of those also repartnering over this time period were found to have a deterioration in mental health compared with only 18 per cent of those not repartnering over this period. Again a change in financial situation appears to have a strong association with a deterioration in mental health with those responding that they feel 'worse off' having the highest chance of their mental health also declining.

10.2.6 Multivariate results

Four logistic regressions were implemented, one on each of the four samples using different controls as indicated in Table 10.15. The results of this modelling can be seen below in Tables 10.17-22.

Improvement in financial situation

Table 10.17 Odds ratios for logistic regression model predicting an improvement in financial situation

Variable	Odds ratio	Robust Std. Error	95% C.I.
Employment change			
Moved into employment (r)	1.00		
Left employment	0.16***	0.055	0.08-0.32
Stayed out of employment	0.19***	0.041	0.13-0.29
Stayed in employment	0.46***	0.090	0.32-0.68
Repartner			
No (r)	1.00		
Yes	2.55***	0.414	1.85-3.50
Social class			
Professional & managerial/ technical occupation (r)	1.00		
Skilled non-manual/manual	0.62***	0.093	0.46-0.83
Partly skilled/unskilled occupation	0.79	0.139	0.56-1.12
Never had a job	1.00	0.367	0.49-2.05
Improvement in mental health			
No (r)	1.00		
Yes	1.56***	0.239	1.16-2.10
Missing	1.32	0.413	0.72-2.44
Type of lone mother			
Previously married (r)	1.00		
Previously cohabiting	1.47***	0.216	1.12-1.96
Single never-married	1.26	0.242	0.86-1.84
Region			
Southern regions (r)	1.00		
Northern regions	0.77*	0.114	0.58-1.03
Wales/Scotland/N.I.	0.75*	0.123	0.54-1.03

***p-value<0.01 **p-value<0.05 *p-value<0.10

Table 10.17 shows the factors found to be significantly associated with a lone mother claiming to feel 'better off' than the year before. The first and most important variable to be included in the model was that indicating a change in employment status with those lone mothers moving into employment over the observation period having the highest odds of feeling 'better off'. After controlling for a change in employment status, repartnering was still found to improve the fit of the model at the one per cent level. Controlling for other variables in the model, those repartnering were found to have around two and a half times the odds of an improvement in subjective financial well-being compared with those not finding a new partner.

Social class was still associated with an improvement in financial situation after controlling for other variables, with those in skilled non-manual and manual occupations having 38 per cent lower odds of having an improvement in financial situation compared with those in professional or managerial occupations. An improvement in mental health was also important with those having an improvement in mental health having 56 per cent higher odds of feeling 'better off' compared with those who did not (which includes those whose mental health situation stayed either above or below the threshold or making a move from below to above the threshold). Interestingly it appears that lone mothers previously separated from a cohabitation were more likely than those who were previously married to feel like their financial situation had improved between any two consecutive waves with odds 46 per cent higher compared with those who were previously married. Finally it was found that those living in Southern regions had the highest odds of feeling 'better off' compared with those living in Northern regions, or Wales, Scotland or Northern Ireland.

Increase in number of resident dependent children

The forwards selection procedure resulted in only three variables being found to be significantly associated with having more children in the household (Table 10.18). Unsurprisingly after carrying out the bivariate analysis repartnering was the most important variable in relation to an increase in number of children in the household. The odds of there being another child in the household by the second time point for those who were found to repartner between the two time points were five times that of those who were not found to repartner over this time and this result was highly

statistically significant (p-value<0.001). The next variable to be included in the model was the variable indicating a change in employment status over the same period of time. Those leaving employment between these two survey years had over six times the odds of having an increase in number of children in the household compared with those staying in work. Those not employed in the first year and staying out of work in the second year were also more likely to have more children in the household by the second year. No significant difference in the likelihood of observing more children in the household at the second time point was found between those moving into employment over the same period and those remaining in employment. After the inclusion of this variable, none of the other change variables, or any of the socio-economic variables, apart from housing tenure, were found to improve the fit of the model further. However, at this stage age was a more important predictor of an increase in number of children than housing tenure. As Table 10.18 shows, those aged 35+ have 71 per cent lower odds of having an increase in number of children compared with lone mothers aged 16-24 years. After including age in the model no additional variables were found to improve the fit of the model further.

Testing for significant interactions resulted in a significant interaction found between repartnering and a change in employment status. This suggests that the odds of having an increase in number of children are substantially higher for those found to leave work and repartner over the same time period compared with those staying in work and not repartnering. However, the standard error of this coefficient was found to be very large with an extremely large confidence interval reflecting it is very imprecise. Examining the underlying raw data reveals that the number of cases that make all these transitions (leave work, repartner and have another child) is extremely small –only nine cases, which is likely to be why it is not well determined.

Table 10.18 Odds ratios for logistic regression model predicting an increase in number of children

Variable	Main effects only			Main effects plus interactions		
	Odds ratio	Robust Std. Error	95% C.I.	Odds ratio	Robust Std. Error	95% C.I.
Repartner						
No (r)	1.00			1.00		
Yes	5.17***	1.391	3.05-8.76	3.86**	2.546	1.06-14.06
Change in employment status						
Move into employment	2.40	1.320	0.82-7.05	1.46	1.258	0.27-7.88
Leave employment	6.94***	3.368	2.68-17.97	1.26	1.380	0.15-10.79
Stay out of work	4.87***	1.908	2.26-10.50	4.87***	2.375	1.87-12.67
Stay in work (r)	1.00			1.00		
Age						
16-24 years (r)	1.00			1.00		
25-29 years	0.99	0.349	0.49-1.97	1.02	0.371	0.50-2.08
30-34 years	0.86	0.304	0.43-1.72	0.86	0.310	0.43-1.74
35+ years	0.29***	0.128	0.12-0.69	0.28***	0.125	0.12-0.67
Change in employment* repartner						
Stay in work*No (r)				1.00		
Move into employment*Yes				2.56	2.894	0.28-23.45
Leave employment*Yes				14.93**	18.986	1.24-180.45
Stay out of work*Yes				0.85	0.644	0.19-3.75

***p-value<0.01 **p-value<0.05 *p-value<0.10

Household move

A number of factors were found to be significant in the model for a household move, the most important of which was whether or not a lone mother was to repartner over the same time period (Table 10.19). From Table 10.19 it can be seen that repartnering increases the chances of a household move by over three times. Another particularly important variable was the housing tenure of the lone mother in the year prior to the move. The model suggests that those who owned their homes are significantly less likely to move house compared with those either renting from their Local Authority or Housing Association or in other rented housing. In fact, those in other rented housing were the most likely to move of the three housing tenure types. An association between age and the likelihood of a household move was established, with an apparent decline in the chance of moving house as age of the lone mother increased. A change in financial situation over the same period of the move was important in the model, with those who

considered themselves to be worse off than in the year prior to the move more likely to have also experienced a household move over this time than those who felt better off. Those who considered their financial situation to have remained 'about the same' were significantly less likely to have also experienced a move, however. An association between time spent as a lone mother and a household move indicated that those who had spent between two and four years as a lone mother were significantly less likely to experience a household move compared with those who had spent two or fewer years as a lone mother. There is no clear pattern in the odds ratios for the other categories of this variable, however. Finally, an association between the variable indicating ethnic group and a household move was determined, with lone mothers of other ethnicity significantly less likely to move than white lone mothers.

Testing for interactions in the final model revealed a significant interaction between repartnering and time spent as a lone mother and another between housing tenure and a change in financial situation. Figures 10.2 and 10.3 display the predicted probabilities for each category of the independent variables.

Table 10.19 Odds ratios for logistic regression model predicting a household move

Variable	Main effects only			Main effects plus interactions		
	Odds ratio	Robust Std. Error	95% C.I.	Odds ratio	Robust Std. Error	95% C.I.
Repartner						
No (r)	1.00			1.00		
Yes	3.74***	0.662	2.65-5.29	2.69***	0.615	1.72-4.21
Housing Tenure						
Owner occupier (r)	1.00			1.00		
LA/HA	1.41**	0.243	1.01-1.98	0.90	0.277	0.49-1.64
Other rented	3.73***	0.721	2.56-5.45	4.91***	1.733	2.46-9.80
Age						
16-24 years (r)	1.00			1.00		
25-29 years	0.65**	0.127	0.45-0.95	0.68**	0.132	0.46-0.99
30-34 years	0.46***	0.093	0.31-0.69	0.47***	0.096	0.32-0.70
35-39 years	0.45***	0.103	0.29-0.71	0.47***	0.111	0.30-0.75
40+ years	0.30***	0.075	0.18-0.49	0.31***	0.079	0.19-0.51
Change in financial situation						
Better off (r)	1.00			1.00		
Worse off	1.38*	0.241	0.98-1.94	1.51	0.427	0.87-2.63
About the same	0.67**	0.111	0.48-0.92	0.41***	0.127	0.22-0.75
Time spent as a lone mother						
$t \le 2$ years (r)	1.00			1.00		
2 years $< t \le 4$ years	0.63***	0.102	0.46-0.87	0.50***	0.097	0.34-0.74
4 years $< t \le 6$ years	0.75	0.167	0.49-1.16	0.60*	0.161	0.35-1.02
$t > 6$ years	0.67	0.212	0.36-1.24	0.53*	0.200	0.25-1.12
Ethnic group						
White (r)	1.00			1.00		
Other	0.39**	0.184	0.16-0.99	0.38**	0.175	0.16-0.94
Housing tenure*Change in financial situation						
Owner occupier*better off (r)				1.00		
LA/HA*worse off				1.21	0.495	0.54-2.70
LA/HA*about the same				3.14***	1.307	1.39-7.10
Other rented*worse off				0.53	0.258	0.21-1.38
Other rented*about the same				0.98	0.451	0.40-2.42
Repartner*time spent as a lone mother						
No* $t \le 2$ years (r)				1.00		
Yes*2 years $< t \le 4$ years				2.28*	1.013	0.95-5.44
Yes*4 years $< t \le 6$ years				3.02**	1.644	1.04-8.78
Yes* $t > 6$ years				2.85	2.320	0.58-14.06

***p-value<0.01 **p-value<0.05 *p-value<0.10

From Figure 10.2 below it can be seen that for any category of the change in financial situation variable, those in the other rented category have the highest probabilities of experiencing a household move. Those living in Local Authority or Housing Association rented housing in year t_{-1} and who consider their financial situation at time t to be about the same have a significantly higher probability of moving house compared with those living in owner occupied housing at t_{-1} and feeling better off in year t.

Figure 10.2 Predicted probabilities of a household move by a change in financial situation and housing tenure
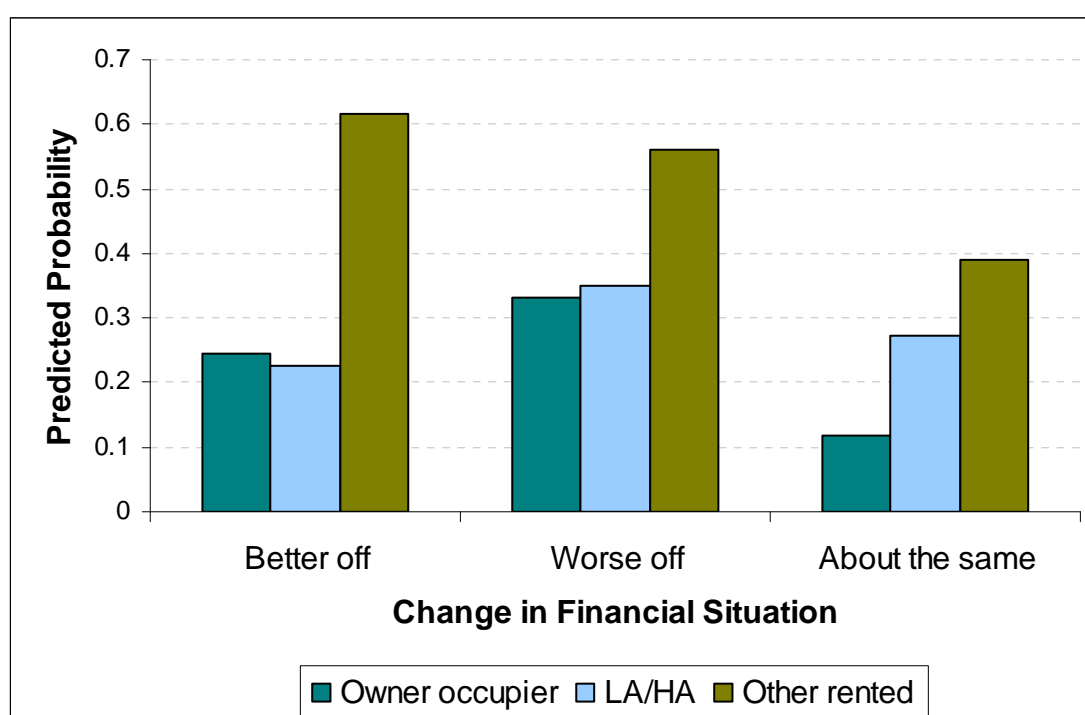
Note: Other covariates set to their reference value; Repartner=No, Age=16-24, Time spent as a lone mother=t<=2 years, Ethnic group=white

Considering the interaction between repartnering and the length of time spent as a lone mother, Figure 10.3 shows that those who repartner have a higher probability of moving house at any duration spent as a lone mother. In particular this interaction reveals that those who repartner and have spent between two and six years as a lone mother have significantly higher probabilities of moving house compared with those that do not repartner and have spent two years or fewer as a lone mother. There is a suggestion that for those who do repartner, the chance of moving increases with length of time spent as a lone mother, at least up to six years duration. For those that do not repartner, the probability of moving house appears to be highest in the first two years since entering lone motherhood, with probabilities lower and roughly stable after this time.

Figure 10.3 Predicted probabilities of a household move by time spent as a lone mother and whether or not they repartner
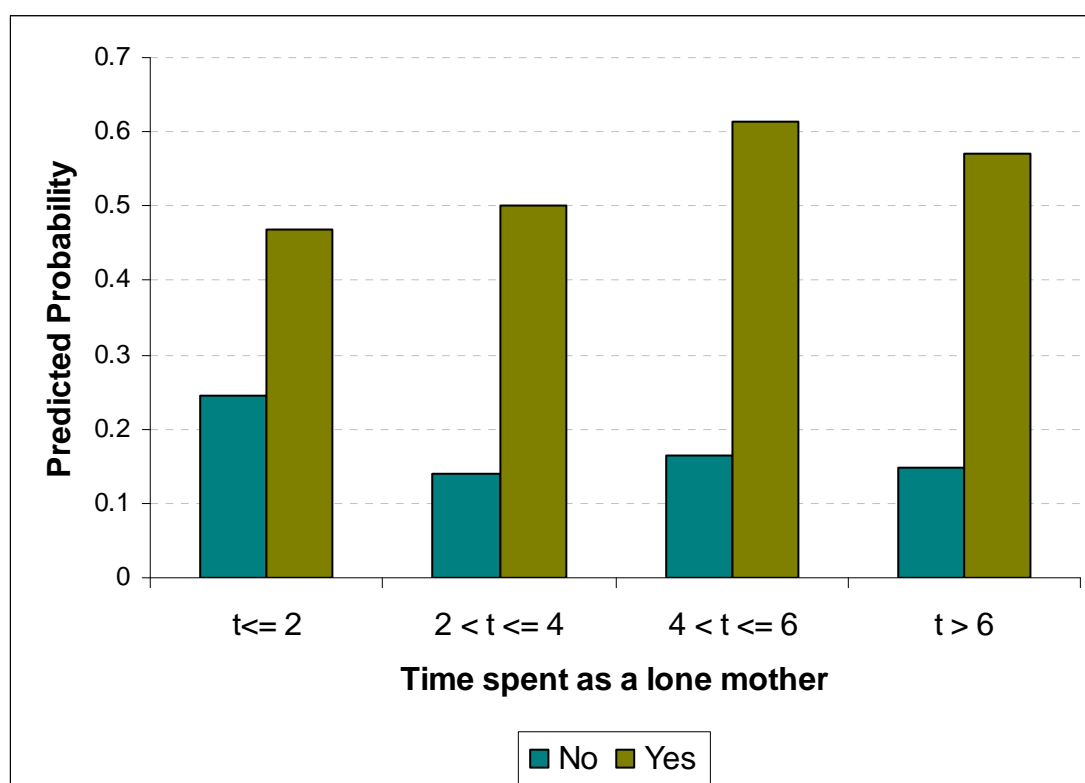
Note: Other covariates set to their reference value; Housing tenure=Owner occupier, Age=16-24, Change in financial situation=Better off, Ethnic group=white

Moves into owner occupation

Examining the association of the explanatory variables with a move into owner occupation for those living in Local Authority or Housing Association rented housing or 'other' rented housing at time t_{-1} resulted in the model displayed below in Table 10.20. The most important variable in relation to making this move was found to be whether or not a lone mother repartnered over this same time. The estimated odds ratio from this model suggests that those who repartner are over 16 times more likely to make this move, than those not repartnering over this time. The standard error for this estimate is large, however, due to the small numbers of individuals making this move. A change in employment status was also important with those moving into employment or staying in employment significantly more likely to experience this type of move compared with those staying out of work. As was found for the model examining the association of the explanatory variables with any type of household move, those in other rented housing are the most likely to move compared with those in LA/HA housing. Those not in

receipt of Income Support are significantly more likely to move into owner occupation that those in receipt of this benefit. Finally, there appears to be some indication, as was suggested by the bivariate analysis, that those with lower levels of education are less likely to make this move than those with higher levels.

Testing for interactions suggested that there was a significant interaction between repartnering and type of housing tenure, with those repartnering and living in other rented housing at time t_{-1} having the highest probability of moving into owner occupation. However, this resulted in the coefficient for the repartnering covariate becoming very large, with a very large confidence interval and was therefore removed from the model.

Table 10.20 Odds ratios for logistic regression model predicting a move into owner occupied housing

Variable	Main effects only (N=882)		
	Odds ratio	Robust Std. Error	95% C.I.
Repartner			
No (r)	1.00		
Yes	16.87***	6.186	8.22-34.61
Change in employment status			
Move into employment	2.78*	1.578	0.92-8.46
Leave employment	0.40	0.460	0.04-3.86
Stay out of work (r)	1.00		
Stay in work	2.74**	1.089	1.26-5.97
Housing Tenure			
LA/HA (r)	1.00		
Other rented	2.33**	0.831	1.16-4.69
Income support			
No	2.47***	0.842	1.26-4.82
Yes (r)	1.00		
Highest Academic qualification			
Degree, HND, HNC, Teaching qualification	2.50	1.484	0.78-8.00
A levels	1.69	0.720	0.73-3.89
O levels (r)	1.00		
CSE	0.59	0.318	0.21-1.70
None of these	0.30*	0.203	0.08-1.14

***p-value<0.01 **p-value<0.05 *p-value<0.10

Table 10.21 Odds ratios for logistic regression model predicting an improvement in mental health

Variable	Main effects			Main effects plus interaction		
	Odds ratio	Robust Std. Error	95% C.I.	Odds ratio	Robust Std. Error	95% C.I.
Change in financial situation						
Better off	1.00			1.00		
Worse off	0.28***	0.069	0.17-0.45	0.40**	0.143	0.20-0.81
About the same	0.57**	0.139	0.35-0.92	0.98	0.324	0.51-1.87
GHQ score						
4-6	1.00			1.00		
7-12	0.45***	0.091	0.30-0.67	0.46***	0.094	0.30-0.68
Financial situation						
Living comfortably	0.98	0.459	0.39-2.45	1.04	0.486	0.42-2.60
Doing alright	1.25	0.391	0.68-2.31	1.22	0.395	0.65-2.30
Just about getting by	2.06***	0.563	1.21-3.52	2.05**	0.588	1.17-3.60
Finding it quite difficult	1.21	0.376	0.66-2.23	1.16	0.392	0.60-2.25
Finding it very difficult	1.00			1.00		
Housing tenure						
Owner occupied	1.00			1.00		
LA/HA	0.76	0.169	0.49-1.17	1.10	0.501	0.45-2.69
Other rented	0.58**	0.134	0.37-0.91	2.18	1.369	0.64-7.46
Ethnic group						
White	1.00			1.00		
Other	0.49	0.22	0.20-1.17	0.46*	0.196	0.20-1.06
Change in financial situation*Housing tenure						
Better off*Owner occupier				1.00		
Worse off*LA/HA				0.90	0.475	0.32-2.53
Worse off*Other rented				0.03***	0.040	0.00-0.42
About the same*LA/HA				0.43	0.234	0.15-1.25
About the same*Other rented				0.25*	0.180	0.06-1.03

***p-value<0.01 **p-value<0.05 *p-value<0.10 N=538

Finally the model predicting an improvement in mental health – defined as a move from a GHQ score of four or over to a score of three or below for those having a GHQ score of four or over at the initial time point – is shown in Table 10.21. As was expected given the results of the bivariate analysis, repartnering is not a significant predictor of an improvement in mental health. Considering the model including just main effects (the first three columns of Table 10.21), the most important predictor was found to be a change in financial situation with those who consider their financial situation to have deteriorated over the past year having 70 per cent lower odds of experiencing an improvement in mental health over this same period compared with those who considered their financial situation to have improved. Those who responded that they felt their financial situation was 'about the same' still have around 40 per cent lower odds of experiencing an improvement in mental health compared with those feeling 'better off'.

Controlling for their initial GHQ score was important, with those with scores of seven or above significantly less likely to score below the threshold in the following year compared with those scoring between four and six. Financial situation, as measured at the first of the two time points, indicates that those 'just about getting by' have over twice the odds of experiencing an improvement in mental health compared with those who are 'finding it very difficult'. However, no other significant differences between other categories and the reference are found. Housing tenure was another important predictor of moving to the GHQ 0-3 category. Although no significant differences were found between those living in Local Authority or Housing Association accommodation and those who were owner occupiers, those living in other types of rented housing had 42 per cent lower odds of experiencing an improvement in mental health. Finally, there was an indication (p=0.11) that ethnic group might be important, with those of ethnicities other than white found to have lower odds of an improvement in mental health.

At the end of the model selection procedure interactions were tested between the variables and a significant interaction between a change in financial situation and housing tenure was found, as can be seen in the second set of columns in Table 10.21 above. Plotting the predicted probabilities for each category of the independent variables (Figure 10.4) suggests that those who consider themselves to be 'better off' financially have a higher probability of an improvement in mental health than those

feeling either 'worse off' or 'about the same' and this is the case for each type of housing tenure except for owner occupiers. For this group of lone mothers, the predicted probability of an improvement in mental health appears to be similar for those feeling 'better off' and 'about the same'. Those feeling 'worse off' financially are the least likely to experience an improvement in mental health for all housing tenure types. Those in LA/HA housing and who consider their financial situation to be 'about the same' have a similar probability of having better mental health to those in the same tenure type and feeling 'worse off'. The group of lone mothers least likely to experience an improvement in mental health are those who are living in other rented housing at time t_{-1} and feeling 'worse off' by time t. This difference in the probability of an improvement in mental health is significantly lower compared with that for those living in owner occupied housing and feeling better off.

Figure 10.4 Predicted probabilities of an improvement in mental health by a change in financial situation and housing tenure
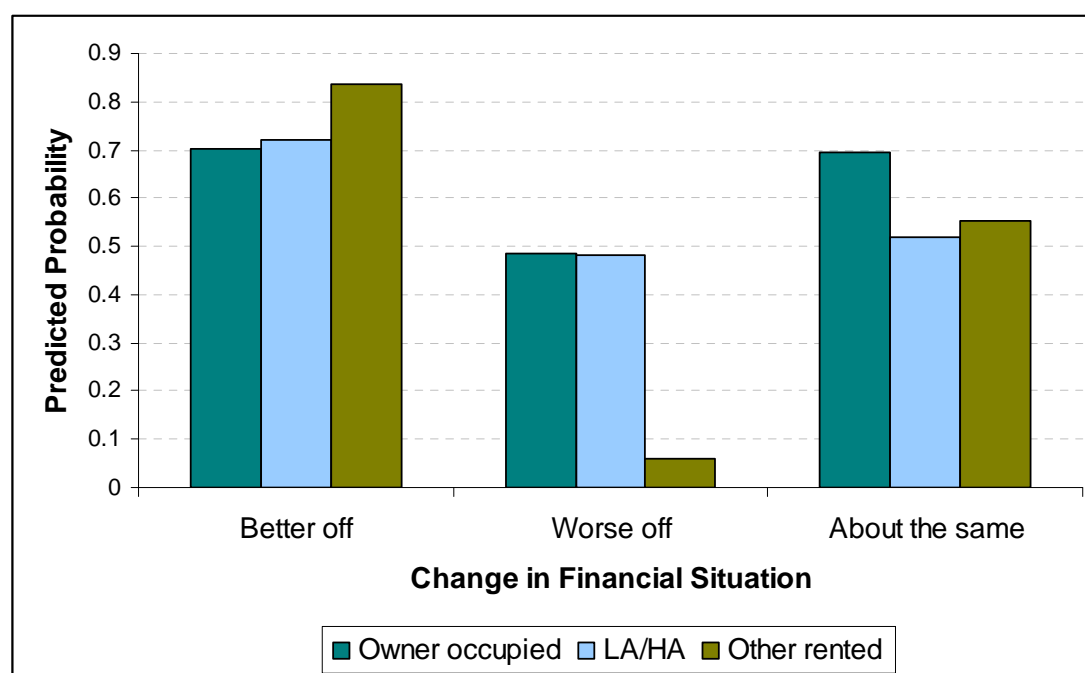
Note: Other covariates set to their reference value; GHQ score=4-6, Financial situation=Living comfortably, Housing tenure=Owner occupied, Ethnic group=white

Deterioration in mental health

The final model which considered the predictors of a move from GHQ category 0-3 to a score at or above the threshold of four can be seen in Table 10.22 below. Only four of

the explanatory variables were found to be significantly associated with a lone mother, who at the first time point had no mental health problems, experiencing this transition. The first and most important predictor of this transition was, as before with the model predicting an improvement in mental health, a change in financial situation. Those considering themselves to be 'worse off' than the year before have over twice the odds of experiencing this transition compared with those who felt their financial situation had improved. Again, their GHQ score at the initial time point is important, with those with a score of 0 the least likely to experience a deterioration in their mental health compared with those scoring between one and three. There is no clear gradient of increasing odds as GHQ score increases however, with no significant difference in odds between other categories of this independent variable. As was suggested in the bivariate analysis, lone mothers with no mental health problems at the first time point, but who were found to repartner between the two survey years had over one and a half times the odds of experiencing a deterioration of their mental health over the same period. Finally, ethnic group was significantly associated with a deterioration of mental health, with non-white lone mothers significantly less likely to experience this transition than white lone mothers.

Table 10.22 Odds ratios for logistic regression model predicting a deterioration of mental health

Variable	Odds ratio	Robust Std. Error	95% C.I.
Change in financial situation			
Better off (r)	1.00		
Worse off	2.37***	0.496	1.57-3.57
About the same	0.86	0.177	0.57-1.29
GHQ score			
0 (r)	1.00		
1	2.09***	0.395	1.45-3.03
2	1.69**	0.406	1.06-2.71
3	1.84**	0.441	1.15-2.94
Repartner			
No (r)	1.00		
Yes	1.65**	0.372	1.06-2.57
Ethnic Group			
White (r)	1.00		
Non-white	0.31*	0.207	0.08-1.15

***p-value<0.01 **p-value<0.05 *p-value<0.10 N=1056

10.2.7 Residual analysis

In logistic regression analysis the residuals have limited meaning in comparison with those predicted by a linear regression model. Despite this, an inspection of the residuals is important in order to check for large or outlying residuals. Figures 10.5-10.10 below show the Pearson residuals plotted against the predicted probabilities as estimated from each of the logistic regressions presented above. The Pearson residuals are the standardized residuals and are given by the formula:

$$r_i = \frac{y_i - \hat{\pi}_i}{\sqrt{\hat{\pi}_i(1 - \hat{\pi}_i)}} \tag{10.5}$$

where, for an individual i, y_i is the observed value of the response variable and $\hat{\pi}_i$ is the fitted probability.

In each figure it can be seen that the number of residuals larger than |2| is small. Table 10.23 below shows the proportion of residuals outside the range $-2.5 < r < 2.5$ for each model, which is never more than five per cent. From each figure it can be seen that the outlying residuals are almost always positive – reflecting a low predicted probability for an observed positive response – which is not surprising given the low proportion of observed successes in each model. These plots clearly reflect that the models are better at predicting a failure than a success. After closer examination of the large positive residuals predicted for each model it could be seen that they were indeed individuals with characteristics which would suggest they were unlikely to have an observed 'success', yet they were observed to make this transition.

Table 10.23 Proportion of residuals less than |2.5| for each model

Model	% Residuals inside |2.5|
Improvement in financial situation	98%
Increase in number of children	97%
Household move	96%
Move into owner occupation	97%
Improvement of mental health	99%
Deterioration of mental health	95%

Figure 10.5 Pearson residuals against predicted probabilities estimated from the model investigating an improvement in financial situation
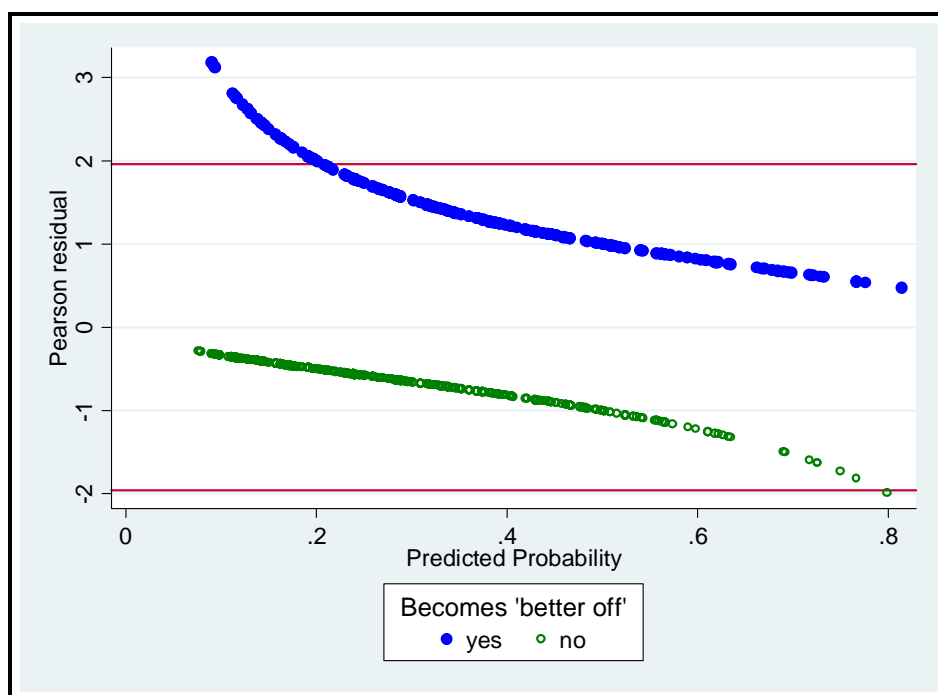
Figure 10.6 Pearson residuals against predicted probabilities estimated from the model investigating an increase in number of children in the household
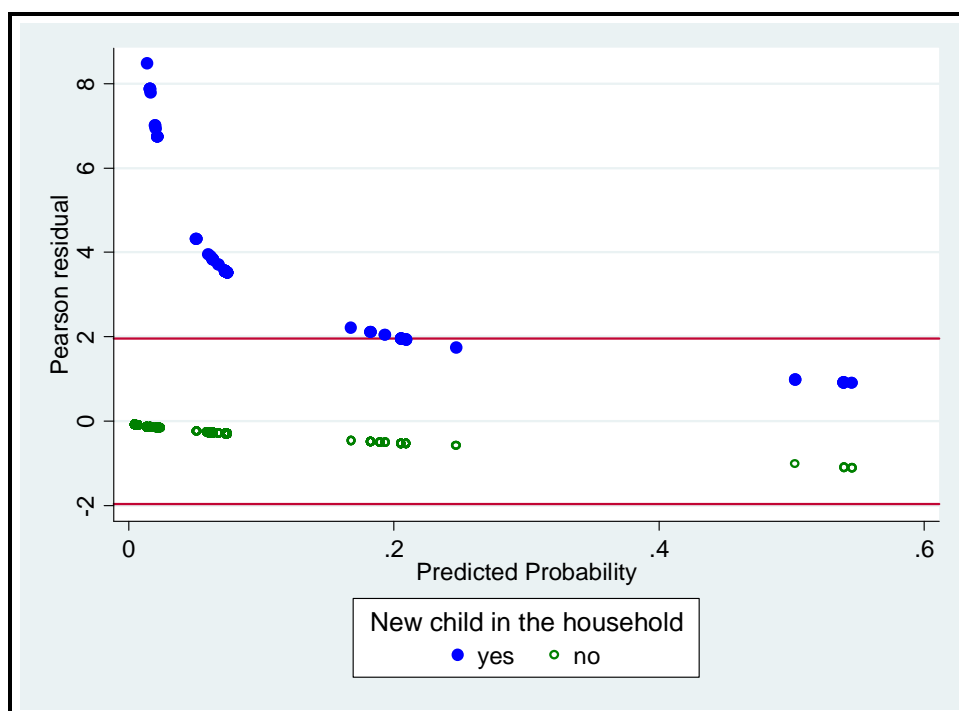
Figure 10.7 Pearson residuals against predicted probabilities estimated from the model investigating a household move
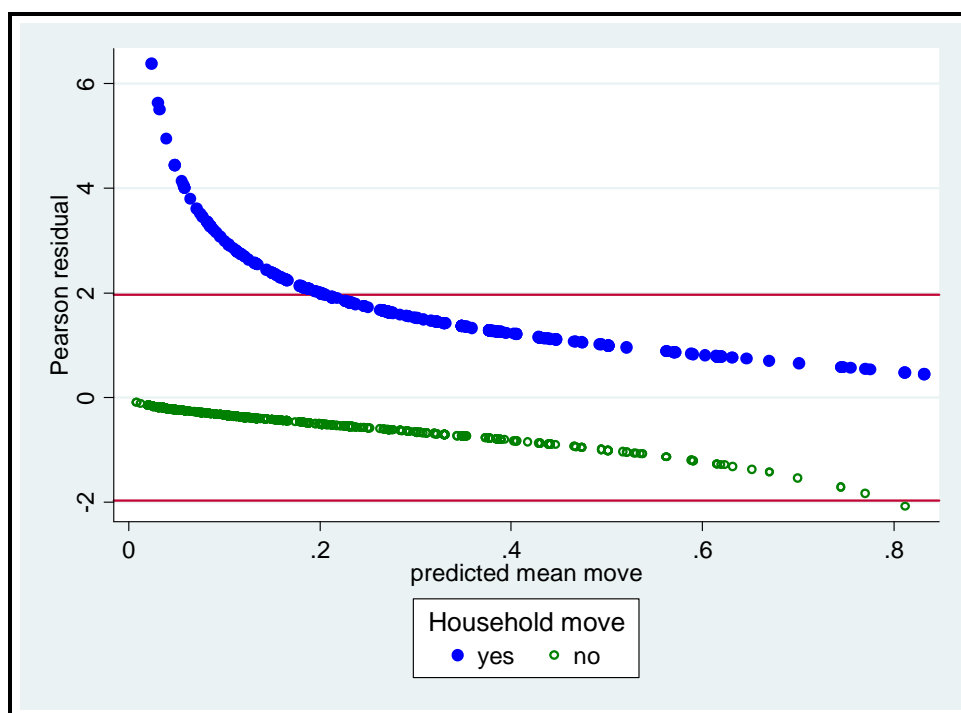
Figure 10.8 Pearson residuals against predicted probabilities estimated from the model investigating a move into owner occupation
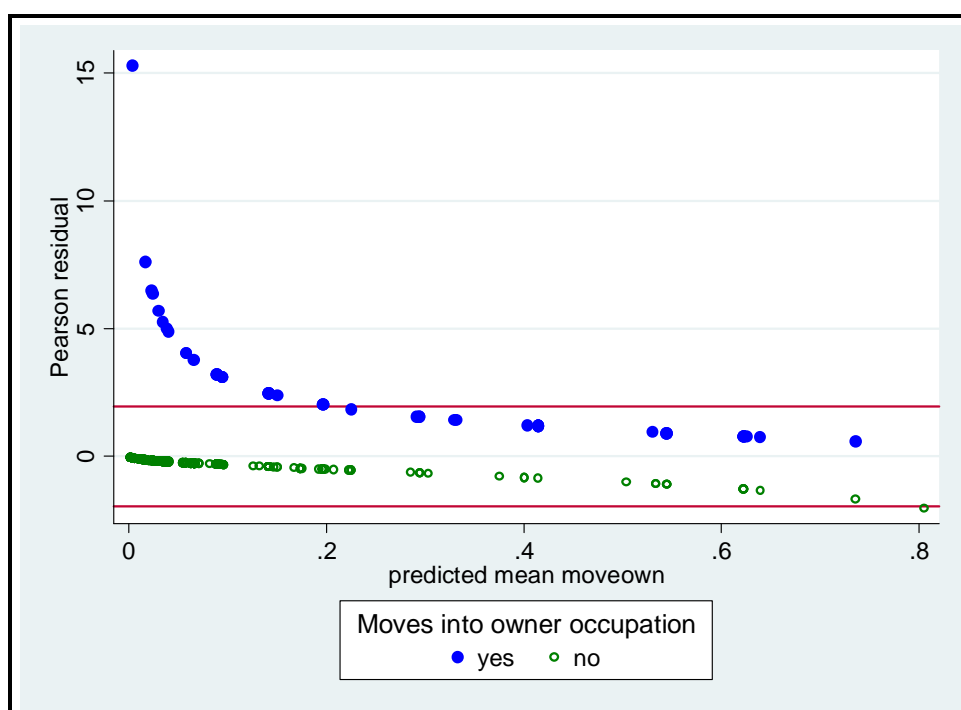
Figure 10.9 Pearson residuals against predicted probabilities estimated from the model investigating an improvement in mental health
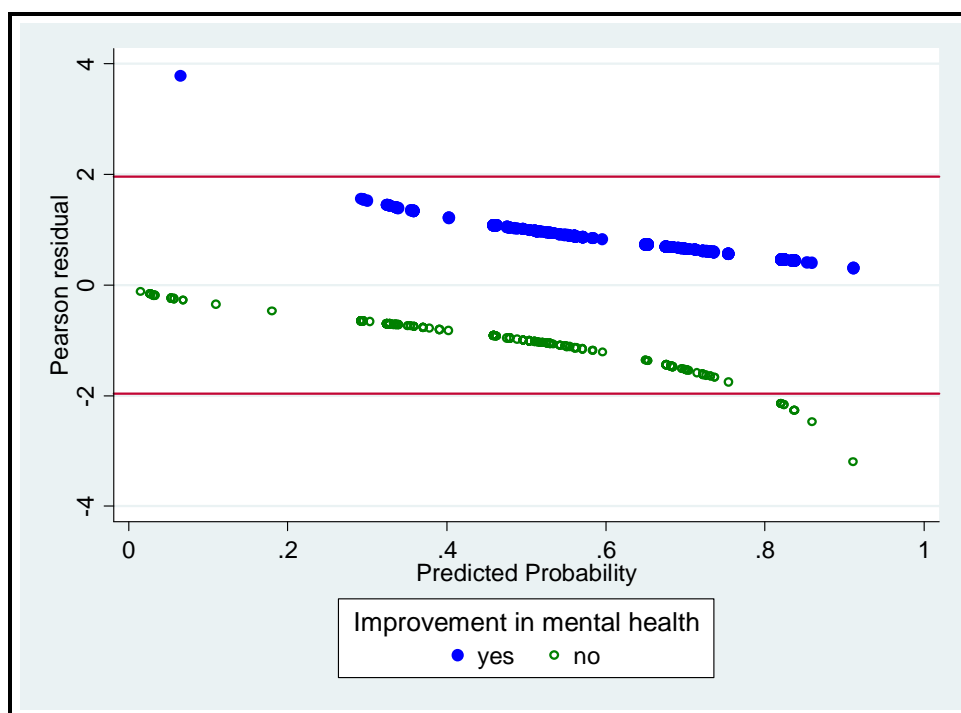
Figure 10.10 Pearson residuals against predicted probabilities estimated from the model investigating a deterioration in mental health
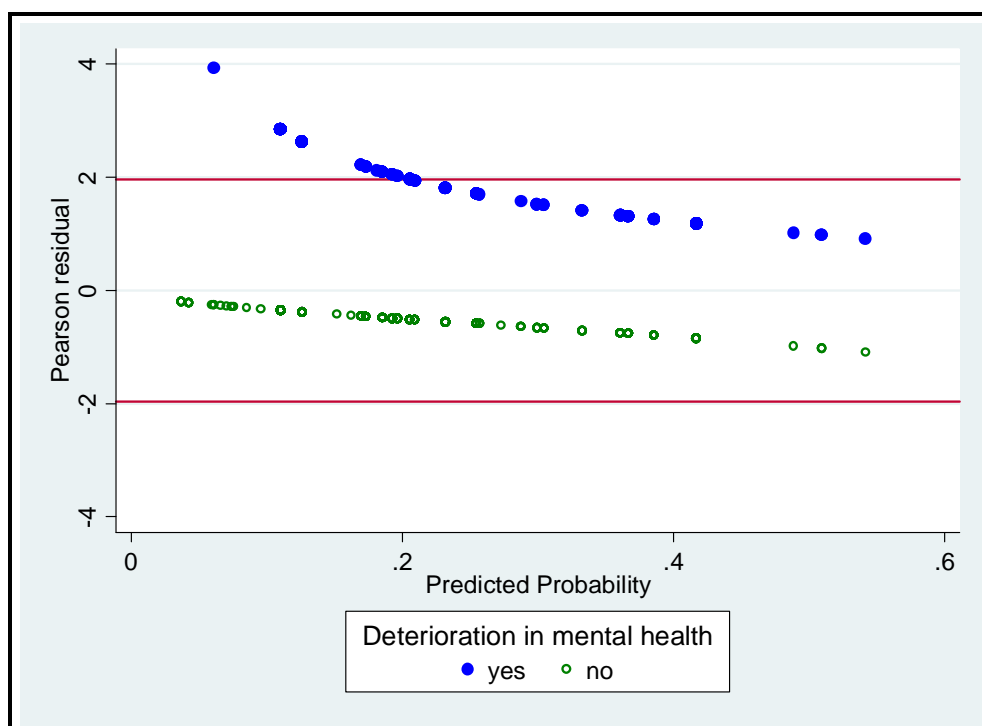
10.3 Discussion

This analysis has indicated that there are a number of transitions occurring around the time a lone mother enters into a new co-residential relationship; repartnering is clearly not an isolated event. Whilst this analysis has been unable to determine any causal direction of these associations, it can certainly provide us with a more complete picture of repartnering and its associated changes - all of which have implications for the well-being of lone mothers. Addressing a limitation with previous research, the aim of this chapter was to consider the overall well-being of lone mothers upon repartnering, rather than concentrate purely on their financial circumstances. In order to do this the association of repartnering with transitions in three key domains: economic, demographic and health was examined.

It is difficult to compare the findings from previous studies in relation to financial well-being and repartnering (Millar, 1989; Bradshaw and Millar, 1991; Ford et al., 1995; Marsh et al., 1997; Ford et al., 1998; Finlayson et al., 2000; Jenkins, 2000; Jenkins et al., 2001; Vegeris and Perry, 2003; Marsh and Vegeris, 2004) with each other and with findings from this study due to the different methods used and different measurement of financial well-being in each study. However, the results here provide further support for an association between improved financial circumstances and repartnering. That said, in line with much of the previous research the most important factor associated with improved financial circumstances was a change in the employment status of a lone mother – those moving into paid employment between any two survey years were statistically the most likely to claim they felt 'better off' at the second time point. Another important factor in relation to an improvement in financial well-being was health. In support of findings from Finlayson et al (2000) of an association between health and a move out of hardship, health was significantly associated with improved finances, although it is mental health not self-perceived health status which was found to be important in this study. Still, the results here are not surprising given the strong link between psychological distress and financial hardship among lone mothers (Baker and North, 1999; Hope et al., 1999a). This analysis also suggested significant associations between improvements in financial situation and the variables for social class, type of lone mother and region. However, these relationships could not be easily explained.

Perhaps not surprisingly, a strong and statistically significant association was found between an increase in number of resident dependent children and repartnering, confirming findings from the descriptive analysis of repartnered lone mothers in this study and those carried out in previous studies (Ford et al., 1995; Finlayson et al., 2000; Marsh and Rowlingson, 2002; Marsh and Perry, 2003; Marsh and Vegeris, 2004). In support of findings from Marsh and Vegeris (2004) and Kasparova et al (2003) the results also indicate a significant association between an increase in number of dependent children in the household and a change in employment status. As hypothesised, an interaction between repartnering and employment status was found indicating a significant association between repartnering, leaving employment and an increase in number of children. However, most likely as a result of small sample size, this interaction was not well determined.

Descriptive analyses from previous studies (as well as those from this study) have indicated an association between repartnering and a household move (Ford et al., 1998; Vegeris and Perry, 2003), yet until now this had not been tested in a multivariate framework. After controlling for a number of demographic and socio-economic characteristics, an association is still found between repartnering and a household move as previously indicated by these studies. Two significant interactions also provided some interesting results. An interaction between repartnering and the length of time spent as a lone mother suggested that for those repartnering the probability of moving increased with duration since entering lone motherhood, discounting those with the longest durations of lone motherhood. For those not repartnering, however, the highest probability of moving was found in the first couple of years after becoming a lone mother – moves which are most likely the result of entering lone motherhood itself. After this time, the predicted probabilities of moving for this group were not surprisingly low.

Housing tenure prior to repartnering was important for a household move and this was involved in an interaction with the variable indicating a change in financial situation. Interpreting this interaction it was found that across all categories of the change in financial situation variable those living in other rented housing at the first time point had the highest probability of having moved house by the second time point. Apart from those in the 'better off' category, higher probabilities of moving were also noted for those originally living in housing rented from their local authority or housing

association compared with those living in owner occupation. Given the time and resources needed to sell-up and move house for those living in owner occupation these findings are perhaps not surprising. The probability of a move was also statistically higher for those previously living in housing rented from the local authority or housing association and who felt their financial situation had not changed between the two survey years, compared with those previously in owner occupation and who felt their financial situation had improved.

It was found to be important to control for age in the model, with a gradient noted in the odds ratios suggesting that as age increased the probability of moving decreased. Ethnic group was also associated with a household move with non-white lone mothers significantly less likely to move than white lone mothers. The rather crude dichotomous nature of this variable tells us little, however, about any ethnic differences that may exist in the probability of a household move for lone mothers. Interestingly, the hypothesised association between a household move and a change in number of children was not significant in the multivariate analysis after controlling for whether or not a lone mother repartnered.

Moving to the results from the model examining the association of explanatory variables with a move into owner occupation, conditional on the lone mother initially living in rented accommodation, the effect of repartnering was found to be even stronger. This confirms previous findings of an association between repartnering and a move into owner occupation (Vegeris and Perry, 2003; Marsh and Vegeris, 2004). A change in employment status was also important, as had been suggested by Vegeris and Perry (2003) although it was not possible to investigate the hypothesised interaction between repartnering and this variable due to small cell counts. Findings indicated that compared with staying out of work, either staying in employment or moving into employment was significantly associated with increased odds of a move into owner occupation over the same time period. Considering the effects of the other socio-economic variables in the model it would appear that the most disadvantaged lone mothers – those living in social rented housing, receiving Income Support and with no academic qualifications – were, as might be expected, particularly unlikely to move into owner occupation.

Findings from this study do not concur with findings from previous studies indicating an association between improved health outcomes and repartnering of lone mothers (Finlayson et al., 2000; Marsh and Vegeris, 2004) or general remarriage/repartnering (e.g. Mastekaasa, 1994; Williams and Umberson, 2004). Even before controlling for other demographic and socio-economic factors repartnering was not associated with a significant improvement in mental health[22]. Given the preference among lone mothers for cohabiting unions over marriage, as observed in Chapter 9, this finding provides some support for the results of the study by Williams et al (2008), that cohabitation offers little improvement to a lone mother's mental health. As was previously found in the model examining financial well-being and in support of findings from previous research (Baker and North, 1999; Hope et al., 1999a), a strong link between changes in mental health and a change in financial situation was identified, however. In fact a change in financial situation was the most important variable in relation to a change in mental health. Controlling for initial GHQ score and a number of other socio-economic factors, lone mothers who felt they were financially either 'better off' or 'about the same' were statistically significantly more likely to experience an improvement in mental health over the same period than those who felt their financial situation had got worse. Similarly, significantly higher odds of deterioration in mental health were found for those becoming 'worse off' over this time compared with those who felt their financial situation had either not changed or improved.

In fact, repartnering was found to be significantly associated with poorer mental health and this was still the case after controlling for a change in financial situation. Perhaps the change in family dynamic as a result of a new partner moving in may result in deteriorating mental health outcomes for some lone mothers, although that is assuming the change in mental health comes after the repartnering (which cannot be discerned from the analysis). From the results of the other models, it is clear that repartnering is associated with additional changes, such as a household move or an increase in number of children. It is also known that repartnering is associated with a change in employment status (Ford et al., 1998; Iacovou and Berthoud, 2000; Kasparova et al., 2003). Moreover the results here suggest that some of these additional changes are independently associated with each other e.g. an increase in number of dependent

---

[22] An improvement in mental health is identified as one where a lone mother moves from a GHQ score at or above the threshold of 4 at time t_{-1} to a score below the threshold at time t. Likewise, a deterioration is identified if a lone mother moves from a score below the threshold at time t_{-1} to above the threshold at time t.

children and a change in employment status; an increase in number of dependent children and a household move. If a lone mother is found to experience other such changes in addition to repartnering, perhaps it would not be so surprising for her to experience deterioration in her mental health.

It was also interesting to see that ethnic group was significant in both models, with white lone mothers significantly more likely to experience either one of the transitions (i.e. improvement or deterioration in mental health) compared with those of other ethnicity. However, as discussed above, this variable is rather uninformative and tells us little about how health transitions might vary across ethnic group.

Taken together, the findings from this study suggest that repartnering is likely to be associated with positive changes to lone mothers overall well-being. This study provides additional support for the contention that repartnering alone is associated with improved financial well-being. However, that is not to dismiss the importance of a move into paid work, which appears to be the more statistically significant of the two. Nonetheless, either one of these two changes may also allow a move onto the 'property ladder'. The positive association between repartnering and more dependent children in the household (which, certainly for those who also repartnered, were in the main new joint babies) is not surprising, but it is encouraging that these additional children are more likely to occur in the context of a new partnership, rather than to a continuing lone mother. The association found between staying out of, or moving out of, employment and the presence of additional dependent children is perhaps less encouraging. Although repartnering was not directly associated with improvements in mental well-being, it may indirectly lead to improvements through its association with an improvement in financial well-being. However the association between repartnering and a deterioration of mental health found in this study warrants further investigation.

10.3.1 Limitations

As mentioned in Section 10.2.4, endogeneity is a particular problem in the analyses in this chapter. In all models the change variables refer to contemporaneous changes – that is, changes occurring over the same time period as the change identified by the response variable. It is therefore not possible to determine any temporal ordering in the

occurrence of these events, which would be a minimum in attempting to identify any causal direction of a significant association. Investigating transitions occurring a year or two after a lone mother was found to repartner would have partially resolved this problem. However, the already small sample size was found to quickly diminish further after this time and would have resulted in problems with power in subsequent statistical analyses.

Another limitation with this work relates to the variable used to identify an improvement in financial well-being. As highlighted at the beginning of the chapter, the significant amount of missing data with respect to household income, which is largely the result of many new partners refusing to partake in the survey, prevented the use of actual income level to measure financial well-being. It is argued that the use of a more subjective measure, such as a change in self-perceived financial situation, is actually more meaningful since it is able to pick up on more broad changes in well-being (including non-material) and refers to a lone mother's individual financial situation rather than that of the household. However, it is acknowledged that a measure such as this is unable to identify any change in absolute income level.

10.3.2 Future directions

This research has identified an association between repartnering and a household move and repartnering and a move into owner occupation. However, from this analysis we do not know anything about the distance of these residential moves. Nor do we know whether those who repartnered and experienced a residential move were to move to wealthier neighbourhoods. Research in the U.S. has shown that remarriage for lone parents may result in a move to a more affluent neighbourhood – a positive finding in light of the fact that entering lone motherhood is more likely to result in a move to a poorer neighbourhood (South, Crowder and Trent, 1998). However, there is a lack of comparable British research. In order to be able to assess the impacts of such moves on the well-being of lone mothers and their children then further analysis of such issues is needed.

Contrary to what has been suggested by much of the previous research, findings from this study suggest that repartnering may be associated with a deterioration of mental health for lone mothers. The review of the literature (Section 3.5) highlighted that little

research has considered the effect of repartnering on the health of lone mothers in the U.K and no previous study that I found has considered this relationship in a multivariate framework. There is therefore a need for more research on the analysis of health transitions over the life-course for lone mothers and how transitions, such as repartnering, may impact on health outcomes.

Chapter 11

Discussion and conclusions

This thesis has investigated the repartnering patterns of lone mothers in the U.K. using data collected in the BHPS and a combination of discrete-time event history and logistic regression analysis techniques. Firstly it provides a detailed analysis of the duration of lone parenthood, the determinants of repartnering and the types of new partnerships formed. Addressing a limitation with previous research on leaving lone parenthood in the U.K., a particular focus is how the route of entry into lone motherhood influences repartnering patterns. In addition it has investigated the association of repartnering with economic, demographic and health transitions in order to identify if repartnering is associated with improved well-being for lone mothers. The first section of this chapter discusses the key findings from this study in relation to the research questions set out in Section 1.1. Through this discussion the conclusions of the thesis are drawn and potential policy implications are highlighted. The chapter closes with a discussion of the limitations of the study and directions for further research.

11.1 Key findings in relation to the specific research questions

1. What are the characteristics associated with the timing to repartnering and hence the duration of lone motherhood?

>   *i. Are demographic and socio-economic characteristics important determinants of the time to repartnering?*

>   *ii. Which type of lone mother is more likely to repartner sooner?*

iii. Does the effect of the covariates on the probability of repartnering change over the length of time spent as a lone mother?

This research confirms that demographic and socio-economic characteristics are important determinants of repartnering among lone mothers. Furthermore, by carrying out separate analyses of those entering lone motherhood through giving birth whilst single and never-married (Chapter 6) and those entering through the breakdown of a marital or cohabiting union (Chapter 7) it has been possible to identify the determinants of repartnering that are specific to each type of lone mother. In support of previous studies, the age at which a woman becomes a lone mother is found to be important for all lone mothers; those becoming a lone mother at older ages are significantly less likely to repartner than those entering lone motherhood at younger ages (Ermisch et al., 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Ford et al., 1998; Rowlingson and McKay, 1998; Finlayson et al., 2000). In fact, as has been found in other studies (e.g. Ermisch et al., 1990; Ermisch and Wright, 1991), the age at which a woman enters lone motherhood is the most important determinant of repartnering for those becoming a lone mother through the breakdown of a union.

In contrast to the conclusion of Böheim and Ermisch (1998), whose analysis was limited to the first five waves of the BHPS, this research suggests that the economic situation of a lone mother has a significant influence on repartnering propensities, particularly for single never-married lone mothers. In fact, this study indicates that the economic situation of a single never-married lone mother is a more important predictor of (re)partnering than her age. This study finds single never-married lone mothers in receipt of Income Support are considerably less likely to (re)partner the following year than those not receiving this benefit. One can only speculate about the reason for this. It may be that lone mothers anticipate losing their entitlement to Income Support upon repartnering and therefore are either less likely to engage in the search for a new partner or perhaps form a 'Living apart together' type of union instead. Alternatively, it may be that a lone mother on benefits is less attractive to a potential male partner. Self-perceived financial situation is another particularly important determinant of (re)partnering (ahead of age) for these lone mothers. Those at either end of the spectrum – those at least 'doing alright' and those finding it 'difficult (or very difficult) to get by' – remain lone mothers for longer than those 'just about getting by'. Lone mothers with no financial worries have, presumably, less economic need to (re)partner.

Perhaps the prospective financial burden to a potential partner makes lone mothers with financial difficulties less likely to (re)partner.

Whilst age was the only demographic characteristic found to be important for single never-married lone mothers, for those becoming a lone mother through the breakdown of a union both the number of children and the type of union which broke down were found to be important determinants of repartnering in addition to age. As expected from previous research lower repartnering propensities are seen for those with two children compared with those with only one. Contrary to what was expected there was a suggestion that the odds of repartnering were lower for those becoming a lone mother through the breakdown of a cohabitation compared with those who entered through the breakdown of a marriage. Few previous studies have considered the effect of health on repartnering. However, the results here suggest that mental health is associated with repartnering for this type of lone mother. Interestingly, the results indicate that those with some degree of psychiatric disturbance (GHQ scores between 4 and 6) are more likely to repartner than those with scores below the threshold, perhaps reflecting a need to repartner for emotional support. Furthermore the effect of religiosity on the probability of repartnering has hardly been examined previously, yet this study indicates it is important for both types of lone mother. Other factors found to be significant in relation to repartnering include educational attainment for single never-married lone mothers and employment status for those entering through the breakdown of a prior union. Although the relationship between education and repartnering is not straightforward, the effect of employment status is clear; those who are unemployed are considerably less likely to repartner the following year than those in employment. The additional opportunity that employment provides to meet a new partner is offered as an explanation for this effect.

Descriptive analyses reveal that the average duration of lone motherhood does not differ depending on route of entry into lone motherhood; the estimated median duration is close to five years for both types of lone mother. Although not directly comparable[23], these durations are of a similar magnitude to those found in the most recent studies (Böheim and Ermisch, 1998; McKay, 2003). Thus there is little evidence that the duration of lone motherhood is increasing. After controlling for a number of demographic and socio-economic factors in a multivariate model including all lone

---

[23] The definition of the different types of lone mothers varies from study to study.

mothers (Chapter 8), those entering through the breakdown of a cohabiting union appear to be significantly less likely to repartner than those entering through the breakdown of a marriage. Although there is some suggestion that the odds of repartnering are lowest for single never-married lone mothers, this is not statistically significant. Furthermore, while the probability of repartnering appears to be different for different types of lone mother (at least for those previously cohabiting compared with those previously married), there is little evidence that the relationship between each factor and repartnering differs by the route of entry into lone motherhood. That said, the considerably smaller sample size of the group of single never-married lone mothers might have played a part in the lack of significant interactions found.

The larger sample size of the multivariate model of all lone mothers was able to provide additional perspective on the determinants of repartnering. Given the disparity in the sample size of the two types of lone mothers, it comes as little surprise that many of the significant determinants of repartnering mirror those previously found in the models of repartnering for lone mothers entering through the breakdown of a union presented in Chapter 7. Clearly the composition of the sample in terms of the proportion of each type of lone mother determines the relative importance of each factor in relation to repartnering. Age is the most important covariate and this is found to interact with number of children. Other relationships found in the individual models were also strengthened in this combined analysis. Particularly important, with regard to policy, was the strong effect of employment status on repartnering. Those out of the labour market who were either unemployed or involved in family care were significantly less likely to repartner the following year than those who were employed. Receipt of maintenance or alimony also reduced the chance of repartnering for lone mothers. Moreover, there is some indication still that receipt of Income Support is important, at least for single never-married lone mothers. However, even given the larger sample size, prior union history had no significant relationship with repartnering.

The larger sample size of the pooled sample of lone mothers did not change the conclusion from Chapters 6 and 7 relating to the effect of duration spent as a lone mother on the probability of repartnering. Despite numerous studies indicating that the probability of repartnering declines with length of time spent as a lone mother (Ermisch et al., 1990; Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Payne and Range, 1998; Finlayson et al., 2000), the data here do not provide any support for this finding.

Furthermore, there is no evidence from this research that the effect of any factor on the probability of repartnering changes with duration spent as a lone parent.

2. What types of partnerships are formed? Are particular partnerships more common for different types of lone parent?

The findings indicate a preference for lone mothers to enter cohabiting unions rather than marriage upon repartnering, in support of previous findings (Böheim and Ermisch, 1998; Ermisch and Francesconi, 2000b; Wu and Schimmele, 2005)[24]. Over 70 per cent of those becoming a lone mother through the breakdown of a partnership and who repartnered entered a cohabiting second union. The comparable figure for single never-married lone mothers is even higher at over 80 per cent. Initial results suggested that the route of entry into lone motherhood has an influence on the choice of new union type; those who entered through the dissolution of a marriage are more likely to form a marriage than those entering through the breakdown of a cohabiting union or the birth of a child whilst single and never-married. However, much of this is found to be a result of previously married lone mothers reconciling with their previous spouse. Re-fitting the model after removing all individuals that reconcile with a previous partner (including those re-forming a cohabitating union) considerably reduces the magnitude of this difference and renders it statistically insignificant. On the other hand, women entering lone motherhood through the breakdown of a cohabiting union are no more or less likely than other types of lone mothers to (re)cohabit, whether or not reconciliations are included in the analysis.

The identification of those reforming a prior union was of interest in itself. Chapter 9 revealed that reconciliations played a significant part in (re)marriages for lone mothers entering through the breakdown of a prior union (over half were reconciliations). Hence the strong effect of removing them from the model on the determinants of (re)marriage. Contrastingly, only 14 per cent of the cohabiting unions formed by this type of lone mother were reconciliations. There appears to be no difference in the chance of reconciliation depending on the type of previous partnership that broke down; 24 per cent of those who were previously married were found to reform a prior union compared with 26 per cent of those who previously cohabited. Reconciliations were of

---

[24] Wu and Schimmele (2005) use Canadian data and consider repartnering of all individuals in their study.

little interest for those entering lone motherhood through giving birth whilst single and never-married, given only around 15 per cent had actually had a previous partnership. However descriptive statistics for this sample indicated that nearly 60 per cent of those that subsequently partnered formed partnerships with the father of their child. Unfortunately in terms of absolute numbers these groups were small, preventing further investigation, such as that conducted by Payne and Range (1998).

3. What is the relationship between repartnering and well-being of lone mothers?

> o *How is repartnering associated with transitions in three key domains: Economic; Demographic; and Health?*

> o *Is repartnering associated with:*
>> ▪ *An improvement in economic circumstances?*
>> ▪ *Additional demographic changes, such as an increase in the number of resident dependent children or a household move?*
>> ▪ *Improved health?*

The literature reviewed in relation to this research question revealed that, more often than not, the focus on repartnering and well-being of lone mothers has been in terms of the relationship between repartnering and financial well-being. Clearly this relationship is of particular importance given the fact that lone mothers are more vulnerable to poverty than couple families. However, as Chapter 10 reveals, repartnering is associated with a host of other changes, many of which are outside of the financial domain. This chapter also confirms the existence of interrelationships between many factors, highlighting the need to use a multivariate framework when considering factors associated with repartnering. Whilst improved financial well-being is certainly a desirable consequence of repartnering for lone mothers, this chapter highlights the importance of considering other changes occurring around this time, since these all have implications for overall well-being of lone mothers.

The empirical findings in relation to financial well-being show, as expected from previous research, the importance of a move into work as a means to improve the financial situation of a lone mother (Millar, 1989; Bradshaw and Millar, 1991; Ford et

al., 1998; Jenkins, 2000; Jenkins et al., 2001; Vegeris and Perry, 2003; Marsh and Vegeris, 2004). However, after controlling for a change in employment status, repartnering is still significantly associated with an improvement in the self-perceived financial situation of a lone mother. Although this measure tells us little about any changes in absolute household income level that might occur subsequent to repartnering it is a positive finding nonetheless. In any case, an increase in the level of household income may not always result in an increase in the personal income of a lone mother, since financial resources within a household are not necessarily distributed evenly. The result from this study certainly indicates an association between a lone mother finding a new partner and an improvement in her own financial situation.

It was not a surprise to find that repartnering was associated with a higher number of dependent children resident in the household. As in previous studies, the results suggest that these additional children are likely to be new joint babies rather than children from the new partner's previous relationship, or older children returning to the household (Ford et al., 1998; Marsh and Rowlingson, 2002). Furthermore, the analysis indicates that new children in the household may have important implications for the employment status of a lone mother. Contrary to the initial hypothesis that the presence of more children in the household might be associated with a household move, this was not found to be the case. The most important factor in relation to a move was whether or not a lone mother repartnered over the same period. However, the relationship between repartnering and moving was modified depending on the length of time already spent as a lone mother. Moves occurring in isolation of repartnering tended to occur in the early years of entering lone motherhood – a likely result of becoming a lone mother in the first place. The probability of experiencing both transitions (a household move and repartnering) was higher at later durations of lone motherhood. Distinguishing between the different types of move and examining a move into owner occupation revealed an even stronger relationship between repartnering and this type of move.

Descriptive statistics provided by previous studies have suggested that the repartnering of lone mothers is associated with improved health outcomes (Finlayson et al., 2000; Marsh and Vegeris, 2004). However, after testing this association in a multivariate framework this research finds no direct association between repartnering and improvements in mental health. Instead, a strong link between a change in mental health and a change in financial situation is found, as has also been suggested by a

number of other studies (Baker and North, 1999; Hope et al., 1999a). The results indicate that an improvement in self perceived financial situation is associated with a significant improvement in mental health and, vice versa, a worsening in self-perceived financial situation goes hand in hand with a deterioration of mental health. One can only conclude therefore that any relationship found between repartnering and an improvement in mental health is indirect, through the association between repartnering and improved financial situation.

However, similar to the findings from a recent U.S. study (Williams et al., 2008), the results here challenge the assumption that repartnering is beneficial for a lone mother's mental well-being. The findings from this research indicate that repartnering is directly associated with a significant deterioration of mental health. Perhaps the change in family dynamic and the increased number of roles that a lone mother may have to play (spouse, mother, step-mother for example) when a partner moves into the household may initially lead to higher levels of psychological distress. However, this explanation implies that the change in mental health score comes as a result of repartnering, yet this is something which cannot be ascertained from this analysis. In fact, this problem of endogeneity is a particular limitation with all the analyses conducted in Chapter 10. Given that the transition captured by the response variable occurs over the same time period as the transition into a partnership, it is impossible to identify the direction of any links found. Analysing changes occurring one or two years after repartnering would have largely resolved this problem and would no doubt have shed more light on the implications of repartnering for a lone mother's well-being. Unfortunately, such analyses were hampered by small sample size.

In conclusion, this study has demonstrated that both demographic and socio-economic factors are likely to affect the duration of lone motherhood in the U.K. There is some evidence that the relative importance of some factors in relation to repartnering differs depending on the route of entry into lone motherhood. Economic factors appear to be particularly important for single never-married lone mothers, but this only becomes clear when considering the different types of lone mothers separately. This result highlights the importance of carrying out separate models in future analyses.
The identification of a considerable number of reconciliations in this study also has implications for future work. The determinants of reforming a prior union are likely to be different to forming a new partnership. Indeed, Payne and Range (1998) find this to

be the case. For example, in their analysis the presence of duration dependence was largely the result of a significant decrease in the likelihood of returning to a previous partner with time since separation; there was no significant effect of duration on the chance of finding a new partner. The age of a woman when she first became a lone mother also had a different effect depending on the type of exit; the chance of finding a new partner decreased steadily with increasing age at entry to lone motherhood, but there was no effect of age on the chance of returning to a former partner. Although it was not possible to replicate their analyses in this study, the findings here provide some support for their results – removing those who reconcile with a previous partner considerably changed the impact of a number of variables on the formation of a marriage. Clearly it is impossible to predict how much this may have affected results from previous studies. However, the level of reconciliations indicated by this study and the effect of these on the model in Chapter 9 suggests that this issue should be considered in subsequent analyses. There is a clear preference to enter cohabiting unions upon repartnering rather than marriage. However, few previous studies have considered how the relationship between each factor and repartnering might differ depending on the type of union formed. In line with findings from repartnering studies conducted in the Netherlands and Canada (Wu and Balakrishnan, 1994; De Graaf and Kalmijn, 2003; Wu and Schimmele, 2005) the findings from this study certainly suggest that there are differences in the effect of each covariate on the likelihood of moving into each type of union. Although lone mothers that form a partnership are likely to experience a number of additional changes over the same period, overall these changes are likely to have a positive impact on a lone mother's well-being.

11.2 Policy implications

Clearly, factors such as the lower rate of paid employment and higher rate of benefit receipt among lone mothers compared with couple families imply that the duration of lone motherhood is particularly relevant to social policy. However, it is also important for policy makers to consider the reciprocal effects of benefit receipt and employment status on the chance of leaving lone motherhood. Of particular concern is the strong negative impact that receipt of Income Support appears to have on the repartnering of single never-married lone mothers. Whether this is due to the fact that a new partner moving into the household is likely to result in a change to the amount of benefit

received by the lone mother, or if this effect can be explained by the lower attractiveness of such a lone mother on benefits to a potential new partner remains to be seen. Further research is clearly needed to investigate this issue. Receipt of alimony or maintenance also reduced the chance of repartnering for all lone mothers, but again the mechanism behind this relationship remains unclear. Employment status was another important factor and the findings here replicate those from a number of previous studies (e.g. Ermisch et al., 1990; Ermisch and Wright, 1991; Marsh and Vegeris, 2004) - those out of the labour market are less likely to repartner. Taken together these results imply that recent reforms designed to reduce the number of lone parents claiming Income Support and increase the proportion of lone parents in employment, might have implications for the repartnering rate of lone parents.

A recent study certainly suggests that in-work benefit reform (i.e. the introduction of the Working Families' Tax Credit (WFTC) in 1999) which was designed to increase the incentive for being in work has had unintended effects on the repartnering of lone mothers (Francesconi and van der Klaauw, 2007). However, although their findings indicate the reform has lead to a significant increase in the employment rate for lone mothers, they find that the reform has reduced their rate of repartnering. Perhaps this result stems from the fact that, as with Income Support, a new partner moving into the household would change a lone mother's entitlement to WFTC. This may suggest that when employment is tied with benefit receipt the positive effects of being in employment on repartnering are out-weighed by the negative effect of benefit receipt on repartnering. Moreover, this finding underpins the importance of understanding the interrelationships between benefit receipt, repartnering and employment in order that the (unintended) implications of in-work benefit reforms can be properly assessed prior to their implementation. Undoubtedly, research on the effects of welfare reform (post implementation) on demographic trends including partnering and fertility, such as the research by Francesconi and van der Klaauw (2007) and that by Brewer, Ratcliffe and Smith (2007) is needed, yet as highlighted by Francesconi and van der Klaauw (2007) such research is considerably lacking for Britain. Whatever the effect of more recent reforms on the repartnering rate for lone parents, encouraging lone parents into paid work is likely to lead to improved financial well-being, as was seen in Chapter 10.

The association between repartnering and an increase in the number of dependent children in the household is also clearly relevant to policy makers. As other studies

have found, a new joint baby has implications for the employment status of the mother (Kasparova et al., 2003; Marsh and Vegeris, 2004). Moreover, the addition of further children to such partnerships which have been found to be more unstable than first partnerships (Ermisch and Francesconi, 2000b) is a concern, particularly in terms of the economic and psychological well-being of the children. The impact of family transitions on the well-being of children is an important issue, but is beyond the scope of this thesis.

11.3 Limitations of the study and lessons for future research

11.3.1 Sample size constraints and their impact on data analysis

The large number of waves of BHPS data available for this research and the prospective nature of the data has allowed a detailed analysis of repartnering patterns of lone mothers in the U.K. However, the fact that analyses required observation of lone mothers from the point they initially entered lone motherhood restricted the sample size available for analysis. Therefore, although numerous waves of data were available, the achieved sample sizes were still relatively small, particularly with respect to women entering lone motherhood through the birth of a child whilst single and never-married. As a result, the statistical power to identify factors significantly associated with repartnering was somewhat limited. Furthermore, disaggregating the data further by particular characteristics of interest resulted in particularly small cell counts in some cases. Although it is possible to collapse categories within variables, the consequence of this can be a loss of meaning. This was particularly the case for the variable for ethnic group, which could only be included as a binary variable indicating white or 'other' ethnic group. In some models, i.e. the models of transitions in health considered in Chapter 10, the variable for ethnic group was found to have a significant effect. However, the rather crude nature of this variable meant that it was able to tell us little about how transitions in health might vary across lone mothers from different ethnic groups. A new panel study, the UK Household Longitudinal Survey (UKHLS), which begins this year and subsumes the BHPS may be able to provide more insight into such issues. As the largest panel study in the world, the UKHLS has a target sample of around 40,000 households amounting to 100,000 individual interviews and includes an ethnic minority booster sample of 3,000 households.

Another constraint of the achieved sample size relates to the spells of lone motherhood considered by the study. Only the first spell that can be identified over the waves of the panel is included in the sample, yet this is not necessarily the first spell of lone motherhood for these women. In fact, a small number of individuals were found to re-enter lone motherhood in later waves of the panel. Therefore there is clearly a possibility that the first observed spell is not the first spell of ever being a lone mother. Establishing and using only the first ever spell would have restricted the relatively small initial sample further. However, it would have been of interest to distinguish between and further examine the repeated spells of lone motherhood.

11.3.2 Measurement of partnership status and complex partnership histories

In order to examine the effect of prior partnerships on the repartnering of lone mothers it was necessary to use the marital and cohabitation histories collected in wave two of the BHPS. However, given that the lone mothers in the sample could enter the sample at any point across the panel these records often had to be updated using subsequent waves of the panel, as described in Section 4.3.2. Whilst the history data in wave two collected dates of the beginning and ending of all prior unions (including cohabitations) up to that point in time, the information collected across the panel in subsequent waves is not nearly so detailed. A variable indicating the timing of a marital status change captures changes in legal marital status from wave three onwards, yet it is not possible to identify the timing of an individual's entry into or dissolution of a cohabiting union across the panel except by comparing their de facto marital status collected in each wave. The exact duration of prior cohabiting unions could therefore not be calculated; hence durations were estimated to the nearest year. In the same respect, the exact timing of a move into a cohabiting union upon repartnering could not be identified. More precise estimates of the timing of entering and dissolving unions including cohabitations might allow a continuous time event history analysis approach and provide further insight into the effect of covariates on the timing of repartnering. Additionally, greater detail is needed to establish more concretely if those re-forming prior unions genuinely separated in the first place, or whether survey error has played a part here. Finally, there needs to be greater efforts to collect full partnership histories of those entering the survey in later waves of the panel. The inclusion of only a limited

number of partnership history variables in each wave of the panel means that the partnership histories for later entrants to the panel are often missing or incomplete.

11.4 Directions for further work

11.4.1 Understanding the repartnering process - quantitative versus qualitative data analysis

This study has been able to provide evidence of the determinants of repartnering for all lone mothers in the U.K. and an estimate of the average duration of lone motherhood. This is important since changes in the duration of lone parenthood may impact upon the growth of lone parenthood. Furthermore, it is important to know how the rate of repartnering varies by demographic and socio-economic factors in order to establish those lone mothers who are most likely to remain in the stock of lone parents. However, quantitative findings such as these can only provide us with so much information. In order to have a greater understanding of the determinants of repartnering and the mechanisms behind the relationships found we need qualitative data. Yet only one of the studies on repartnering of lone mothers (Rowlingson and McKay, 1998) has collected such data. Qualitative data would also provide us with insights into other types of unions which may be formed by lone mothers. For example, this study considers the determinants of forming a co-residential partnership, even though some lone mothers may have entered a 'Living apart together' union – which cannot be identified in the BHPS.

11.4.2 Multiple episodes of lone parenthood

Whilst this study has suggested that the average duration of lone motherhood is relatively short and has provided some evidence that repartnering is associated with positive changes to a lone mother's well-being, the stability of the new unions created has not been considered here. The identification in this study of multiple episodes of lone parenthood, as described above, certainly indicates a level of instability with respect to the partnerships formed. There seems to be little U.K. research on the stability of stepfamilies. Analysis of the first five waves of the BHPS by Ermisch and

Francesconi (2000b) suggests a high level of instability for such families; over one quarter were found to dissolve within a year. Research on the stability of remarriages in the U.S. provides similar results. Remarriages where step-children are involved have particularly high rates of dissolution compared with first marriages (Booth and Edwards, 1992). The duration of these new partnerships and the factors which are associated with the dissolution of such unions are of clear importance, not least because of the implications of the breakdown of such unions for the well-being of a lone mother and her children.

Not all the new unions formed by lone mothers led to stepfamilies however. A number of the single never-married lone parents had never had a previous partnership and a significant proportion of this type of lone mother that found a partner were found to form a partnership with the father of their child. Berrington and Diamond (1999) found a higher risk of marital dissolution among those who have a pre-marital birth compared with those who have their first birth within marriage in their analysis of the 1958 birth cohort. However, the majority of new unions formed by lone mothers were cohabitations. The proportion of these unions which are later converted to marriage or dissolved and the determinants and timing of such events would be an area for further research.

Around a quarter of the sample that became a lone mother through the breakdown of a previous partnership and found a new partner, were found to be re-forming their previous partnership. As highlighted above, given the lack of detail relating to the movement into and out of partnerships, particularly cohabiting unions, collected by the BHPS across the panel it is difficult to know if these are genuine break-ups and reformations or if the observed patterns are due to survey error. For those that had reformed their relationship following only one survey year of being a lone parent there is a higher chance that these break-ups are spurious. However, for those where the spouse is not identified as living in the household for several years it is likely that these cases are genuine. Clearly there is a need for further research to examine these partnerships and for improved data collection to identify spurious versus real periods of separation from a partner.

11.4.3 The circumstances of other family members

The characteristics of the new partner entering the household will no doubt have some implications for the speed with which a lone mother might be able to move off benefits or improve her financial situation for example. As highlighted by Finlayson et al (2000), repartnering of lone mothers can only lead to an improvement in the welfare of the family if the new partner entering the household can significantly add to the household income. In fact, any changes in a lone mother's well-being upon repartnering will be, to a certain extent, determined by the characteristics of the new partner entering the household. In spite of this, there appears to be only one study which has attempted to examine the characteristics of the new partners in any detail (Finlayson et al., 2000). Whilst it was of interest to examine the characteristics of the new partners for the lone mothers considered in this thesis, a considerable proportion did not provide a full interview in the year they were found to be living in the household. Attempts to cross-tabulate transitions in the well-being domains with the new partner's characteristics yielded extremely small cell counts in many cases and prevented any meaningful analysis. In order to fully establish the impact of repartnering on the well-being of lone mothers it will be vital for future studies to consider the characteristics of the new partner as well as those of the lone mother herself.

11.4.4 Welfare policies and the dynamics of lone parenthood

As previously mentioned, the rate of benefit receipt is higher among lone mothers than couple families. Results from the latest wave of the FACS indicate that nearly all lone mothers received either a benefit or tax credit, compared with two thirds of couple families (Conolly and Kerr, 2008). Given the means-tested nature of many of these benefits, a new partner moving into the household has implications for the amount of benefit received and possibly entitlement to the benefit at all (depending on the circumstances of the new partner in terms of their employment status and level of income). Whilst a number of studies have considered benefit receipt as a determinant of repartnering (Ermisch and Wright, 1991; Böheim and Ermisch, 1998; Ford et al., 1998; Finlayson et al., 2000), there appears to be relatively little research which has examined the effect of repartnering on benefit status, particularly using a multivariate framework. Descriptive statistics from previous studies (e.g. McKay, 2002; Marsh and Perry, 2003)

and those from this study suggest repartnering is associated with a move off Income Support. However, a multivariate analysis conducted by Finlayson et al (2000) found little evidence of a direct association between repartnering and a move off either Income Support or Family Credit (now WFTC). Yet their study appears to be the only study which has examined movements onto and off benefits in relation to repartnering using a multivariate model. Clearly more studies are needed to test this finding.

11.4.5 Mental health and the dynamics of lone parenthood

Existing research indicates that lone mothers have poorer mental health than married mothers (Hope et al., 1999a). However, little research has considered the effect of transitions into and out of lone parenthood on mental health. Research on marital transitions and mental health has demonstrated that transitioning out of marriage is associated with higher levels of psychological distress (Hope, Rodgers and Power, 1999b; Wade and Pevalin, 2004). This suggests that entry into lone parenthood, at least for those entering through the breakdown of a partnership, will lead to poorer mental health outcomes. In fact, Hope et al (1999a) find that the higher level of psychological distress for lone mothers compared with married mothers can largely be explained by financial hardship. However, their inability to account for all the difference between lone mothers and married mothers, and in particular with regards to divorced lone mothers, leads them to the conclusion that factors relating to divorce might also be important in explaining the difference in mental health between married women and lone mothers. More research is therefore needed to firmly establish the effect of entry into lone motherhood on health and how this varies by routes into lone motherhood.

Compared with exits from marriage, the impact of entry into marriage or remarriage on health is less clear and has been somewhat neglected in the literature (Williams and Umberson, 2004). A positive effect of forming a cohabiting union after the breakdown of a marriage on mental health has been found (Mastekaasa, 1994). However, a recent study by Williams et al (2008) conducted in the U.S. challenges the notion that repartnering, particularly in the form of a cohabiting union, necessarily leads to positive changes in mental health for lone mothers. Whilst descriptive analyses in previous U.K. studies have shown an association between leaving lone parenthood through repartnering and improved health outcomes (Finlayson et al., 2000; Marsh and Vegeris,

2004), the results from this thesis suggest there is no direct association between improvements in mental health and repartnering. Instead a direct association between repartnering and a deterioration of mental health is found, though the limitations of the analysis imply that this result should be considered with caution. There is clearly a need for further research using longitudinal data to examine the impact of entry and exit from lone parenthood on mental health outcomes, particularly considering the results from such analyses are likely to have important policy implications.

11.4.6 Ethnicity and the dynamics of lone parenthood

A number of studies have identified a difference in the chance of becoming a lone mother by ethnic group (e.g. Rowlingson and McKay, 1998). However, the results from several studies (e.g. Böheim and Ermisch, 1998; Finlayson et al., 2000) which have considered ethnic group in relation to the duration of lone parenthood have revealed contrasting results. This is most likely due to the small proportion of lone mothers who are of ethnicities other than white in the U.K. which hinders statistical analyses. The larger sample size of the UKHLS and the inclusion of an ethnic minority boost will undoubtedly be able to provide a greater understanding of how the duration of lone parenthood varies by ethnic group.

Appendix A

Percentage distributions of the variables selected for the analysis of repartnering among single never-married lone mothers.

Fixed time variables

Explanatory variable	N		% Distribution	
	Original[25]	Expanded	Original	Expanded
Age (categorised)				
16-19 years	32	121	36.0	40.9
20-24 years	38	103	42.7	34.8
25-29 years	12	38	13.5	12.8
30+ years	7	34	7.9	11.5
Number of previous partners				
No previous partner	75	245	84.3	82.8
1 partner	10	38	11.2	12.8
2 partners	4	13	4.5	4.4
Ethnic group membership				
White	86	284	96.6	96.0
Other	3	12	3.4	4.1
Highest Academic qualification				
Higher degree, teaching qualification, HND/HNC	9	40	10.1	13.5
A levels	11	25	12.4	8.5
O levels	32	89	36.0	30.1
CSE	17	71	19.1	24.0
None of these	20	71	22.5	24.0
Tenure				
Owner occupier	36	112	40.5	37.8
Local authority/Housing Assoc. rented	45	156	50.6	52.7
Other rented	8	28	9.0	9.5
Social Class				
Professional/Managerial	13	47	14.6	15.9
Skilled non-manual	23	65	25.8	22.0
Skilled manual	8	27	9.0	9.1
Partly skilled/unskilled manual	36	123	40.5	41.6
Missing	9	34	10.1	11.5

Cont/d

---

[25] The original dataset includes one row per lone mother. The expanded dataset includes as many rows per lone mother as periods they were at risk for (also known as a person-period data-file) and therefore as a result the frequency distributions are weighted according to how many years a lone mother remained a lone mother.

Fixed time variables continued…

Explanatory variable	N		% Distribution	
	Original	Expanded	Original	Expanded
Region				
Southern regions	32	112	36.0	37.8
Northern regions	31	97	34.8	32.8
Wales/Scotland/N.I.	26	87	29.2	29.4
Religion				
No religion	57	199	64.0	67.2
C of E/Anglican	11	30	12.4	10.1
Roman Catholic	13	46	14.6	15.5
Other religion	8	21	9.0	7.1
Attendance at religious services				
Once a week or more	4	10	4.5	3.4
At least once a month	7	27	7.9	9.1
At least once a year	15	51	16.9	17.2
Practically never	29	101	32.6	34.1
Only weddings/funerals	34	107	38.2	36.2
Year of entry to lone motherhood				
1992	5	22	5.6	7.4
1993-1994	20	86	22.5	29.1
1995-1996	11	59	12.4	19.9
1997-1999	21	71	23.6	24.0
2000-2003	32	58	36.0	19.6
Sample membership status				
Original Essex sample	75	271	84.3	91.6
Extension sample	14	25	15.7	8.5

Time-varying covariates

Explanatory variable	N	% Distribution
Employment Status		
Employed	88	29.7
Unemployed	20	6.8
Family Care	153	51.7
Other	35	11.8
Income Support		
Yes	194	65.5
No	102	34.5
Alimony		
Yes	15	5.1
No	281	94.9

Time-varying covariates continued…

Explanatory variable	N	% Distribution
Housing Benefit		
Yes	96	32.4
No	200	67.6
Financial Situation		
Living comfortably/doing alright	121	40.9
Just about getting by	100	33.8
Finding it quite/very difficult	75	25.3
Limiting health		
Yes	37	12.5
No	259	87.5
GHQ score		
GHQ 0-3	219	74.0
GHQ 4-6	35	11.8
GHQ 7-12	42	14.2
Annual income		
£10,000 or less	108	36.5
£10,000.01- £15,000.00	82	27.7
£15,000.01- £20,000.00	50	16.9
£20,000.01 or more	27	9.1
Missing	29	9.8
Household type		
Lone parent household	222	75.0
Couple or other household	74	25.0

Appendix B

Percentage distributions of the variables selected for the analysis of repartnering among women becoming a lone mother through the breakdown of a previous partnership.

Fixed time variables

Explanatory variable	N		% Distribution	
	Original[26]	Expanded	Original	Expanded
Age (categorised)				
18-24 years	74	215	17.4	16.6
25-29 years	71	210	16.7	16.2
30-34 years	114	408	26.8	31.4
35+ years	167	465	39.2	35.8
Number of children				
One child	193	531	45.3	40.9
Two children	159	548	37.3	42.2
Three or more children	74	219	17.4	16.9
Age of youngest child				
Under 5 years	218	694	51.2	53.5
5 to 11 years	149	498	35.0	38.4
12 to 15 years	59	106	13.9	8.2
Type of lone mother				
Previously married	279	861	65.5	66.3
Previously cohabiting	147	437	34.5	33.7
Number of previous partners				
1 partner	243	793	66.0	68.1
2 partners	100	299	27.2	25.7
3 or more partners	25	72	6.8	6.2
Previous union duration				
Less than 5 years	96	315	26.1	27.1
5 to 9 years	99	294	26.9	25.3
10 to 14 years	72	234	19.6	20.1
15+ years	101	321	27.5	27.6
Ethnic group membership				
White	414	1266	97.2	97.5
Other	12	32	2.8	2.5

---

[26] The original dataset includes one row per lone mother. The expanded dataset includes as many rows per lone mother as periods they were at risk for (also known as a person-period data-file) and therefore as a result the frequency distributions are weighted according to how many years a lone mother remained a lone mother.

Fixed time variables continued…

Explanatory variable	N		% Distribution	
	Original	Expanded	Original	Expanded
Highest Academic qualification				
Higher degree, teaching qualification, HND/HNC	42	151	9.9	11.6
A levels	70	240	16.4	18.5
O levels	176	542	41.3	41.8
CSE	62	189	14.6	14.6
None of these	76	176	17.8	13.6
Tenure				
Owner occupier	197	635	46.2	48.9
Local authority/Housing Assoc. rented	154	445	36.2	34.3
Other rented	75	218	17.6	16.8
Social Class				
Professional/Managerial	90	300	21.1	23.1
Skilled non-manual	138	423	32.4	32.6
Skilled manual	52	147	12.2	11.3
Partly skilled/unskilled manual	127	372	29.8	28.7
Missing	19	56	4.5	4.3
Region				
Southern regions	133	452	31.2	34.8
Northern regions	170	531	39.9	40.9
Wales/Scotland/N.I.	123	315	28.9	24.3
Religion				
No religion	217	626	50.9	48.2
C of E/Anglican	111	368	26.1	28.4
Roman Catholic	41	106	9.6	8.2
Other religion	57	198	13.4	15.3
Attendance at religious services				
Once a week or more	28	96	6.6	7.4
At least once a month	33	118	7.8	9.1
At least once a year	77	241	18.1	18.6
Practically never	119	343	27.9	26.4
Only weddings/funerals	169	500	39.7	38.5
Year of entry to lone motherhood				
1992	33	134	7.8	10.3
1993-1994	59	249	13.9	19.2
1995-1996	54	241	12.7	18.6
1997-1999	106	354	24.9	27.3
2000-2003	174	320	40.9	24.7
Sample origin				
Original Essex Sample	341	1144	80.1	88.1
Extension Sample	85	154	20.0	11.9

Time varying covariates

Explanatory variable	N	% Distribution
Employment Status		
Employed	741	57.1
Unemployed	63	4.9
Family Care	413	31.8
Other	81	6.2
Income Support		
Yes	772	59.5
No	526	40.5
Alimony		
Yes	896	69.0
No	402	31.0
Housing Benefit		
Yes	947	73.0
No	351	27.0
Financial Situation		
Living comfortably	113	8.7
Doing alright	334	25.7
Just about getting by	545	42.0
Finding it quite difficult	195	15.0
Finding it very difficult	111	8.6
Limiting Health		
Yes	138	10.6
No	1160	89.4
GHQ score		
GHQ 0-3	831	64.0
GHQ 4-6	188	14.5
GHQ 7-12	279	21.5
Annual income		
£5,000.00 or less	103	7.9
£5,000.01- £10,000.00	411	31.7
£10,000.01- £15,000.00	371	28.6
£15,000.01- £20,000.00	213	16.4
£20,000.01 or more	141	10.9
Missing	59	4.6
Household type		
Lone parent household	1253	96.5
Couple or other household	45	3.5

Appendix C

Coding frames for the explanatory variables used in the analysis of economic, demographic and health transitions.

Demographic control variables (measured at time t_{-1})

Variable	Coding	Notes
Age	1 = 16-24 years 2 = 25-29 years 3 = 30-34 years 4 = 35-39 years 5 = 40 years and older	
Time spent as a lone mother	1 = $t \leq 2$ years 2 = 2 years $< t \leq 4$ years 3 = 4 years $< t \leq 6$ years 4 = $t > 6$ years	
Number of children	1 = One child 2 = Two children 3 = Three or more children	
Age of youngest child	1 = Under 5 years 2 = 5-11 years 3 = 12-15 years 4 = Missing	
Type of lone mother	1 = Previously married 2 = Previously cohabiting 3 = Single never-married	

Socio-economic control variables (measured at time t_{-1})

Variable	Coding	Notes
Housing tenure	1 = Owner occupied 2 = Local authority/housing association rented 3 = Other rented	
Social class	1 = Professional & managerial/ technical occupation 2 = Skilled non-manual/manual 3 = Partly skilled/unskilled occupation* 4 = Never had a job	* including 2 in the armed forces
Highest academic qualification	1 = Degree, HND, HNC, teaching qualification 2 = A levels 3 = O levels 4 = CSE 5 = None of these	
Employment	1 = Employed 2 = Unemployed 3 = Family car 4 = Other	
Financial situation	1 = Living comfortably 2 = Doing alright 3 = Just about getting by 4 = Finding it quite difficult 5 = Finding it very difficult	
Receipt of Income Support	1 = No 2 = Yes	
GHQ Score	1 = GHQ 0-3 2 = GHQ 4-6 3 = GHQ 7-12	

Change variables (change measured between t_{-1} and t)

Variable	Coding	Notes
Repartner	0 = No 1 = Yes	
Change in financial Situation	1 = Better off 2 = Worse off 3 = About the same	Variable collected at time t_1. From question: "Would you say that you yourself are better off, worse off or about the same financially than you were a year ago?"
Change in employment status	1 = Moved into employment 2 = Left employment 3 = Stayed out of work 4 = Stayed in work	
Change in number of children	1 = Less children 2 = More children 3 = No change 4 = No dependent children	
Change in receipt of Income Support	1 = Stay off income support 2 = Move onto income support 3 = Move off income support 4 = Stay on income support	
Improvement in mental health	1 = No 2 = Yes	
Individual move	1 = Non-mover 2 = Mover	

Appendix D

Levels of item non-response in each analysis.

Improvement in financial situation

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	40	2.41
Type of lone mother	0	0.00
Ethnic group membership	7	0.42
Sample origin	0	0.00
Housing tenure	7	0.42
Social class	11	0.66
Highest academic qualification	10	0.60
Employment status	0	0.00
Financial situation	15	0.91
Receipt of income support	14	0.84
GHQ score	33	1.99
Region	5	0.30
Repartner	0	0.00
Employment transition	0	0.00
Change in number of children	0	0.00
Change in receipt of income support	14	0.84
Change in mental health	54	3.26
Individual move	0	0.00

*percent of sample missing after deletion of missing cases on the dependent variable

Increase in number of resident dependent children

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	40	2.40
Type of lone mother	0	0.00
Ethnic group membership	7	0.42
Sample origin	0	0.00
Housing tenure	7	0.42
Social class	11	0.66
Highest academic qualification	10	0.60
Employment status	0	0.00
Financial situation	15	0.90
Receipt of income support	14	0.84
GHQ score	33	1.98
Region	5	0.30
Repartner	0	0.00
Employment transition	0	0.00
Change in financial situation	9	0.54
Change in receipt of income support	19	1.14
Change in mental health	59	3.54
Individual move	0	0.00

*percent of sample missing after deletion of missing cases on the dependent variable

Household move

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	40	2.40
Type of lone mother	0	0.00
Ethnic group membership	7	0.42
Sample origin	0	0.00
Housing tenure	7	0.42
Social class	11	0.66
Highest academic qualification	10	0.60
Employment status	0	0.00
Financial situation	15	0.90
Receipt of income support	14	0.84
Region	5	0.30
GHQ Score	33	1.98
Repartner	0	0.00
Employment transition	0	0.00
Change in number of children	0	0.00
Change in receipt of income support	19	1.14
Change in financial situation	9	0.54
Change in mental health	59	3.54

*percent of sample missing after deletion of missing cases on the dependent variable

Move into owner occupation

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	14	1.57
Type of lone mother	0	0.00
Ethnic group membership	4	0.45
Sample origin	0	0.00
Housing tenure	0	0.00
Social class	8	0.89
Highest academic qualification	8	0.89
Employment status	0	0.00
Financial situation	6	0.67
Receipt of income support	5	0.56
Region	5	0.56
GHQ Score	14	1.57
Repartner	0	0.00
Employment transition	0	0.00
Change in number of children	0	0.00
Change in receipt of income support	7	0.78
Change in financial situation	4	0.45
Change in mental health	31	3.47

*percent of sample missing after deletion of missing cases on the dependent variable

Improvement in mental health

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	18	3.31
Type of lone mother	0	0.00
Ethnic group membership	0	0.31
Sample origin	0	0.00
Housing tenure	4	0.74
Social class	3	0.55
Highest academic qualification	2	0.37
Employment status	0	0.00
Financial situation	0	0.00
Receipt of income support	0	0.00
Region	2	0.37
Repartner	0	0.00
Employment transition	0	0.00
Change in number of children	0	0.00
Change in receipt of income support	0	0.00
Change in financial situation	2	0.37
Individual move	0	0.00

*percent of sample missing after deletion of missing cases on the dependent variable

Deterioration of mental health

Variable	Frequency missing	Per cent missing*
Age	0	0.00
Time spent as a lone mother	0	0.00
Number of children	0	0.00
Age of youngest child	19	1.79
Type of lone mother	0	0.00
Ethnic group membership	5	0.47
Sample origin	0	0.00
Housing tenure	2	0.19
Social class	5	0.47
Highest academic qualification	5	0.47
Employment status	0	0.00
Financial situation	1	0.09
Receipt of income support	0	0.00
Region	3	0.28
Repartner	0	0.00
Employment transition	0	0.00
Change in number of children	0	0.00
Change in receipt of income support	0	0.00
Change in financial situation	2	0.19
Individual move	0	0.00

*percent of sample missing after deletion of missing cases on the dependent variable

Appendix E

Bivariate associations between the dependent variables in each domain and the explanatory variables

Improvement in Financial situation

Explanatory Variable	Per cent "better off"	N
Age		
16-24 years	28.9	325
25-29 years	27.9	269
30-34 years	27.8	342
35-39 years	26.3	323
40 years and older	23.9	339
Pearson Chi-square = 2.5556 (p=0.635)		
Time spent as a lone mother		
t ≤ 2 years	26.0	846
2 years < t ≤ 4 years	26.7	412
4 years < t ≤ 6 years	31.4	210
t > 6 years	26.2	130
Pearson Chi-square = 2.5797 (p=0.461)		
Number of children		
One child	26.8	826
Two children	29.2	554
Three or more children	21.6	218
Pearson Chi-square = 4.7147 (p=0.095)		
Age of youngest child		
Under 5 years	27.2	735
5-11 years	29.2	595
12-15 years	21.7	230
Missing	15.8	38
Pearson Chi-square = 7.1975 (p=0.066)		
Type of lone mother		
Previously married	26.0	857
Previously cohabiting	30.3	433
Single never-married	24.7	308
Pearson Chi-square = 3.5883 (p=0.166)		
Ethnic group		
White	27.0	1556
Other	23.8	42
Pearson Chi-square = 0.2106 (p=0.646)		
Sample origin		
Original Essex sample	27.7	1420
Extension sample	20.8	178
Pearson Chi-square = 3.8173 (p=0.051)		

Improvement in financial situation continued…

Explanatory Variable	Per cent "better off"	N
Time period		
1992-1994	22.1	204
1995-1997	27.9	369
1998-2000	29.1	488
2001-2003	26.1	537
Pearson Chi-square = 4.0104 (p= 0.260)		
Housing tenure		
Owner occupied	27.2	739
Local authority/housing		639
association rented	26.0	
Other rented	28.6	220
Pearson Chi-square = 0.6469 (p=0.724)		
Social class		
Professional & managerial/		
technical occupation	34.6	358
Skilled non-manual/manual	23.2	655
Partly skilled/unskilled		
occupation	26.7	514
Never had a job	23.9	71
Pearson Chi-square = 15.7712 (p=0.001)		
Highest academic qualification		
Degree, HND, HNC, teaching		
qualification	35.1	214
A levels	30.7	290
O levels	27.3	600
CSE	21.3	253
None of these	19.9	241
Pearson Chi-square = 19.3423 (p=0.001)		
Employment		
Employed	29.8	826
Unemployed	29.8	84
Family care	22.7	573
Other	25.2	115
Pearson Chi-square = 9.1733 (p=0.027)		
Financial situation		
Living comfortably	30.8	143
Doing alright	25.7	428
Just about getting by	27.7	649
Finding it quite difficult	26.6	237
Finding it very difficult	23.4	141
Pearson Chi-square = 2.5196 (p=0.641)		
Receipt of income support		
No	28.8	871
Yes	24.6	727
Pearson Chi-square = 3.5468 (p=0.060)		

Improvement in financial situation continued…

Explanatory Variable	Per cent "better off"	N
GHQ Score		
GHQ 0-3	27.0	1057
GHQ 4-6	24.9	225
GHQ 7-12	28.2	316
Pearson Chi-square = 0.7217 (p=0.697)		
Region		
Southern regions	31.1	573
Northern regions	25.2	626
Wales/Scotland/N.I.	23.6	399
Pearson Chi-square = 8.1949 (p=0.017)		
Repartner		
No	24.1	1388
Yes	45.2	210
Pearson Chi-square = 41.2998 (p=0.000)		
Employment change		
Moved into employment	51.8	141
Left employment	16.5	79
Stayed out of employment	17.6	631
Stayed in employment	31.2	747
Pearson Chi-square = 83.5302 (p=0.000)		
Change in number of children		
Less children	21.8	87
More children	25.7	70
No change in no. children	27.5	1382
Empty nest	22.0	59
Pearson Chi-square = 2.1432 (p=0.543)		
Change in receipt of income support		
Stay off income support	29.8	799
Move onto income support	18.1	72
Move off income support	43.8	144
Stay on income support	19.9	583
Pearson Chi-square = 41.5745 (p=0.000)		
Improvement in mental health		
No	25.4	1,286
Yes	33.6	292
Missing	25.0	20
Pearson Chi-square = 8.0425 (p=0.018)		
Individual move		
Non-mover	25.7	1308
Mover	32.4	290
Pearson Chi-square = 5.4594 (p=0.019)		

Increase in number of children

Explanatory Variable	Per cent having another child	N
Age		
16-24 years	8.0	325
25-29 years	7.0	272
30-34 years	4.9	346
35+ years	1.3	673
Pearson Chi-square = 29.6008 (p=0.000)		
Time spent as a lone mother		
t ≤ 2 years	5.5	862
2 years < t ≤ 4 years	4.6	412
4 years < t ≤ 6 years	1.9	212
t > 6 years	0.8	130
Pearson Chi-square = 9.5843 (p=0.022)		
Number of children		
One child	5.0	834
Two children	3.9	560
Three or more children	3.2	222
Pearson Chi-square = 1.9208 (p=0.383)		
Age of youngest child		
Under 5 years	7.0	744
5-11 years	2.8	600
12-15 years	0.4	233
Missing*	2.6	39
Pearson Chi-square = 24.4392 (p=0.000)		
Type of lone mother		
Previously married	2.9	869
Previously cohabiting	4.6	439
Single never-married	8.4	308
Pearson Chi-square = 16.8015(p=0.000)		
Ethnic group		
White	4.5	1572
Other	2.3	44
Pearson Chi-square = 0.4843 (p=0.486)		
Sample origin		
Original Essex sample	4.5	1434
Extension sample	3.9	182
Pearson Chi-square = 0.1463 (p=0.702)		
Time period		
1992-1994	7.7	208
1995-1997	4.9	371
1998-2000	4.8	497
2001-2003	2.4	540
Pearson Chi-square = 10.8694 (p=0.012)		

Increase in number of children continued…

Explanatory Variable	Per cent having another child	N
Housing tenure		
Owner occupied	2.1	748
Local authority/housing association rented	6.7	646
Other rented	5.4	222
Pearson Chi-square = 17.4667 (p=0.000)		
Social class		
Professional & managerial/ technical occupation	1.9	365
Skilled non-manual/manual	3.3	659
Partly skilled/unskilled occupation	7.1	520
Never had a job*	6.9	72
Pearson Chi-square = 17.3592 (p=0.001)		
Highest academic qualification		
Degree, HND, HNC, teaching qualification	2.3	216
A levels	1.7	293
O levels	4.6	605
CSE	5.5	257
None of these	7.8	245
Pearson Chi-square = 14.6081 (p=0.006)		
Employment		
Employed	2.3	835
Unemployed*	5.8	86
Family care	7.8	578
Other	1.7	117
Pearson Chi-square = 27.1692 (p=0.000)		
Financial situation		
Living comfortably	0.7	144
Doing alright	4.6	432
Just about getting by	4.9	655
Finding it quite difficult	5.4	242
Finding it very difficult	3.5	143
Pearson Chi-square = 5.9509 (p=0.203)		
Receipt of Income Support		
No	2.5	883
Yes	6.7	733
Pearson Chi-square = 16.7665 (p=0.000)		
GHQ Score		
0-3	4.3	1057
4-6	4.4	225
7-12	4.8	316
Pearson Chi-square = 0.1417 (p=0.932)		

*Expected cell counts <5

Increase in number of children continued…

Explanatory Variable	Per cent having another child	N
Region		
Southern regions	5.5	578
Northern regions	4.4	632
Wales/Scotland/N.I.	2.7	406
Pearson Chi-square = 4.5407 (p=0.103)		
Repartner		
No	3.0	1404
Yes	13.7	212
Pearson Chi-square = 50.0880 (p=0.000)		
Employment change		
Moved into employment	4.2	142
Left employment*	11.4	79
Stayed out of employment	7.2	639
Stayed in employment	1.3	756
Pearson Chi-square = 38.1644 (p=0.000)		
Change in receipt of income support		
Stay off income support	2.1	811
Move onto income support*	6.9	72
Move off income support	6.3	144
Stay on income support	6.8	589
Pearson Chi-square = 20.5477(p=0.000)		
Change in financial situation		
Better off	4.1	435
Worse off	5.0	422
About the same	4.2	759
Pearson Chi-square = 0.4658 (p=0.792)		
Improvement in mental health		
No	4.2	1286
Yes	5.1	292
Missing*	5.3	38
Pearson Chi-square = 0.5684 (p=0.753)		
Individual move		
Non-mover	3.7	1324
Mover	7.5	292
Pearson Chi-square = 8.3691 (p=0.004)		

*Expected cell counts <5

Household Move

Explanatory Variable	Per cent experiencing a household move	N
Age		
16-24 years	30.8	325
25-29 years	21.6	269
30-34 years	16.1	342
35-39 years	14.9	323
40 years and older	8.6	339
Pearson Chi-square = 61.2988 (p=0.000)		
Time spent as a lone Mother		
t ≤ 1 year	22.2	846
1 year < t ≤ 3 years	13.8	412
3 years < t ≤ 5 years	14.3	210
t > 5 years	11.5	130
Pearson Chi-square = 20.5456 (p=0.000)		
Number of children		
One child	21.6	826
Two children	14.3	554
Three or more children	15.1	218
Pearson Chi-square = 13.4023 (p=0.001)		
Age of youngest child		
Under 5 years	23.5	735
5-11 years	15.1	595
12-15 years	8.7	230
Missing	18.4	38
Pearson Chi-square = 31.8661 (p=0.000)		
Type of lone mother		
Previously married	13.9	857
Previously cohabiting	21.7	433
Single never-married	25.0	308
Pearson Chi-square = 23.9130 (p=0.000)		
Ethnic group		
White	18.4	1556
Other	9.5	42
Pearson Chi-square = 2.1596 (p=0.142)		
Sample origin		
Original Essex sample	18.4	1420
Extension sample	16.3	178
Pearson Chi-square = 0.4643 (p=0.496)		
Time period		
1992-1994	24.5	204
1995-1997	21.7	369
1998-2000	16.8	488
2001-2003	14.5	537
Pearson Chi-square = 13.9965 (p=0.003)		

*Expected cell counts <5

Household Move continued…

Explanatory Variable	Per cent experiencing a household move	N
Housing tenure		
Owner occupied	11.8	739
LA/HA	19.1	639
Other rented	36.8	220
Pearson Chi-square = 72.2303 (p=0.000)		
Social class		
Professional & managerial/ technical occupation	14.3	358
Skilled non-manual/manual	17.6	655
Partly skilled/unskilled occupation	20.2	514
Never had a job	28.2	71
Pearson Chi-square = 10.1285 (p=0.018)		
Highest academic qualification		
Degree, HND, HNC, teaching qualification	15.0	214
A levels	15.9	290
O levels	19.7	600
CSE	20.2	253
None of these	17.8	241
Pearson Chi-square = 4.1255 (p=0.389)		
Employment		
Employed	17.2	826
Unemployed	17.9	84
Family care	19.4	573
Other	19.1	115
Pearson Chi-square = 1.1661 (p=0.761)		
Financial situation		
Living comfortably	16.8	143
Doing alright	19.2	428
Just about getting by	16.6	649
Finding it quite difficult	20.3	237
Finding it very difficult	19.9	141
Pearson Chi-square = 2.4507(p=0.653)		
Receipt of income support		
No	17.0	871
Yes	19.5	727
Pearson Chi-square = 1.7215 (p=0.189)		
GHQ Score		
0-3	16.7	1057
4-6	23.6	225
7-12	19.3	316
Pearson Chi-square = 6.3083 (p=0.043)		

Household Move continued…

Explanatory Variable	Per cent experiencing a household move	N
Region		
Southern regions	19.0	573
Northern regions	18.9	626
Wales/Scotland/N.I.	15.8	399
Pearson Chi-square = 1.9969 (p=0.368)		
Repartner		
No	14.6	1388
Yes	41.4	210
Pearson Chi-square = 88.2172 (p=0.000)		
Employment change		
Moved into employment	19.9	141
Left employment	30.4	79
Stayed out of employment	19.0	631
Stayed in employment	15.8	747
Pearson Chi-square = 11.3364 (p=0.010)		
Change in number of children		
Less children	11.5	87
More children	31.4	70
No change in no. children	18.2	1382
Empty nest	10.2	59
Pearson Chi-square = 13.4398 (p=0.004)		
Change in receipt of income support		
Stay off income support	16.3	799
Move onto income support	25.0	72
Move off income support	28.5	144
Stay on income support	17.3	583
Pearson Chi-square = 14.7714 (p=0.002)		
Change in financial situation		
Better off	21.9	430
Worse off	22.8	417
About the same	13.5	751
Pearson Chi-square = 21.1821 (p=0.000)		
Improvement in mental health		
No	17.5	1286
Yes	20.2	292
Missing*	30.0	20
Pearson Chi-square = 3.0914 (p=0.213)		

Move into owner occupation

Explanatory Variable	Per cent moving into owner occupier housing	N
Age		
16-24 years	2.3	257
25-29 years	5.1	195
30-34 years	7.5	186
35-39 years	8.7	138
40 years and older	7.6	92
Pearson Chi-square = 9.6991 (p=0.046)		
Time spent as a lone Mother		
t ≤ 1 year	5.1	470
1 year < t ≤ 3 years	6.2	227
3 years < t ≤ 5 years	6.9	102
t > 5 years*	5.8	69
Pearson Chi-square = 0.6593 (p=0.883)		
Number of children		
One child	6.3	474
Two children	4.7	275
Three or more children	5.0	119
Pearson Chi-square = 0.9325 (p=0.627)		
Age of youngest child		
Under 5 years	3.9	489
5-11 years	7.9	278
12-15 years	8.1	87
Missing*	7.1	14
Pearson Chi-square = 6.5290 (p=0.089)		
Type of lone mother		
Previously married	8.3	324
Previously cohabiting	5.4	332
Single never-married	1.9	212
Pearson Chi-square = 10.0488 (p=0.007)		
Ethnic group		
White	5.7	839
Other*	3.5	29
Pearson Chi-square = 0.2719 (p=0.602)		
Sample origin		
Original Essex sample	6.2	763
Extension sample	1.9	105
Pearson Chi-square = 3.1375 (p=0.077)		
Time period		
1992-1994	6.7	119
1995-1997	5.4	205
1998-2000	6.3	270
2001-2003	4.7	274
Pearson Chi-square = 0.9216 (p=0.820)		

*Expected cell counts <5

Move into owner occupation continued…

Explanatory Variable	Per cent moving into owner occupier housing	N
Housing tenure		
LA/HA	3.9	646
Other rented	10.8	222
Pearson Chi-square = 14.9434 (p=0.000)		
Social class		
Professional & managerial/ technical occupation	8.6	117
Skilled non-manual/manual	6.6	350
Partly skilled/unskilled occupation	4.7	344
Never had a job*	0.0	57
Pearson Chi-square = 6.4618 (p=0.091)		
Highest academic qualification		
Degree, HND, HNC, teaching qualification*	9.7	72
A levels	11.6	121
O levels	6.3	318
CSE	2.6	192
None of these	1.8	165
Pearson Chi-square = 18.3400 (p=0.001)		
Employment		
Employed	9.8	336
Unemployed*	3.5	57
Family care	3.0	404
Other*	2.8	71
Pearson Chi-square = 17.9836 (p=0.000)		
Financial situation		
Living comfortably*	3.8	53
Doing alright	6.1	229
Just about getting by	7.0	356
Finding it quite difficult	2.9	140
Finding it very difficult	4.4	90
Pearson Chi-square = 3.9974 (p=0.406)		
Receipt of Income Support		
No	10.3	329
Yes	2.8	539
Pearson Chi-square = 21.8716 (p=0.000)		
GHQ Score		
0-3	5.8	567
4-6	8.6	116
7-12	3.4	176
Missing*	0.0	9
Pearson Chi-square = 4.1513 (p=0.246)		

*Expected cell counts <5

Move into owner occupation continued…

Explanatory Variable	Per cent moving into owner occupier housing	N
Region		
Southern regions	5.9	290
Northern regions	6.6	365
Wales/Scotland/N.I.	3.8	213
Pearson Chi-square = 2.0459 (p=0.360)		
Repartner		
No	2.7	748
Yes	24.2	120
Pearson Chi-square = 89.6833 (p=0.000)		
Employment change		
Moved into employment*	8.4	83
Left employment*	2.1	47
Stayed out of employment	2.0	449
Stayed in employment	11.1	289
Pearson Chi-square = 29.4596 (p=0.000)		
Change in number of children		
Less children*	5.9	34
More children*	1.8	55
No change in no. children	6.0	756
Empty nest*	4.4	23
Pearson Chi-square = 1.7225 (p=0.632)		
Change in receipt of income support		
Stay off income support	12.1	282
Move onto income support*	0.0	47
Move off income support	9.2	98
Stay on income support	1.4	441
Pearson Chi-square = 42.0789 (p=0.000)		
Change in financial situation		
Better off	9.5	231
Worse off	3.6	223
About the same	4.6	414
Pearson Chi-square = 9.1634 (p=0.010)		
Improvement in mental health		
No	5.9	699
Yes	4.8	146
Missing*	4.4	23
Pearson Chi-square = 0.3347 (p=0.846)		

*Expected cell counts <5

Improvement in mental health

Explanatory Variable	Per cent having an improvement in mental health	N
Age		
16-24 years	53.6	97
25-29 years	59.7	77
30-34 years	57.8	128
35-39 years	43.0	100
40 years and older	59.2	130
Pearson Chi-square = 7.9361 (p=0.094)		
Time spent as a lone mother		
t ≤ 2 years	53.0	349
2 years < t ≤ 4 years	61.7	107
4 years < t ≤ 6 years	53.2	47
t > 6 years	55.2	29
Pearson Chi-square = 2.5482 (p=0.467)		
Number of children		
One child	56.5	269
Two children	54.1	194
Three or more children	50.7	69
Pearson Chi-square = 0.8130 (p=0.666)		
Age of youngest child		
Under 5 years	58.2	232
5-11 years	52.1	194
12-15 years	54.6	88
Missing	44.4	18
Pearson Chi-square = 2.4442 (p=0.485)		
Type of lone mother		
Previously married	54.8	332
Previously cohabiting	56.0	125
Single never-married	53.3	75
Pearson Chi-square = 0.1363(p=0.934)		
Ethnic group		
White	55.3	521
Other	36.4	11
Pearson Chi-square = 1.5565 (p=0.212)		
Sample origin		
Original Essex sample	54.6	471
Extension sample	57.4	61
Pearson Chi-square = 0.1725 (p=0.678)		
Time period		
1992-1994	51.7	91
1995-1997	55.7	131
1998-2000	58.7	155
2001-2003	52.3	155
Pearson Chi-square = 1.7700 (p=0.621)		

Improvement in mental health continued…

Explanatory Variable	Per cent having an improvement in mental health	N
Housing tenure		
Owner occupied	58.9	248
Local authority/housing association rented	53.7	205
Other rented	45.6	79
Pearson Chi-square = 4.4844 (p=0.106)		
Social class		
Professional & managerial/ technical occupation	56.9	109
Skilled non-manual/manual	58.5	207
Partly skilled/unskilled occupation	51.9	189
Never had a job	40.7	27
Pearson Chi-square = 4.1240 (p=0.248)		
Highest academic qualification		
Degree, HND, HNC, teaching qualification	53.5	58
A levels	58.2	91
O levels	59.1	198
CSE	48.4	95
None of these	50.0	90
Pearson Chi-square = 4.3474 (p=0.361)		
Employment		
Employed	53.5	269
Unemployed	51.6	31
Family care	58.0	195
Other	51.4	37
Pearson Chi-square = 1.2588 (p=0.739)		
Financial situation		
Living comfortably	53.3	30
Doing alright	54.3	94
Just about getting by	64.6	209
Finding it quite difficult	46.7	105
Finding it very difficult	43.6	94
Pearson Chi-square = 15.6837 (p=0.003)		
Receipt of Income Support		
No	56.1	289
Yes	53.5	243
Pearson Chi-square = 0.3487 (p=0.555)		
GHQ Score		
4-6	65.8	219
7-12	47.3	313
Pearson Chi-square = 17.7499 (p=0.000)		

Improvement in mental health continued…

Explanatory Variable	Per cent having an improvement in mental health	N
Region		
Southern regions	56.7	201
Northern regions	53.2	205
Wales/Scotland/N.I.	54.8	126
Pearson Chi-square = 0.5163 (p=0.772)		
Repartner		
No	54.0	454
Yes	60.3	78
Pearson Chi-square = 1.0641 (p=0.302)		
Employment change		
Moved into employment	63.0	46
Left employment	46.4	28
Stayed out of employment	54.8	217
Stayed in employment	54.4	241
Pearson Chi-square = 2.0725 (p=0.557)		
Change in number of children		
Fewer children	43.6	39
More children	60.0	25
No change in number of children	55.5	449
Empty nest	57.9	19
Pearson Chi-square = 2.4024(p=0.493)		
Change in receipt of income support		
Stay off income support	56.9	260
Move onto income support	48.3	29
Move off income support	53.5	43
Stay on income support	53.5	200
Pearson Chi-square = 1.1366 (p=0.768)		
Change in financial situation		
Better off	68.5	143
Worse off	39.4	180
About the same	58.9	209
Pearson Chi-square = 29.4141 (p=0.000)		
Individual move		
Non-mover	55.1	423
Mover	54.1	109
Pearson Chi-square = 0.0319 (p=0.858)		

Deterioration in mental health

Explanatory Variable	Per cent having a deterioration in mental health	N
Age		
16-24 years	18.7	225
25-29 years	18.1	188
30-34 years	19.1	209
35-39 years	19.4	217
40 years and older	22.2	207
Pearson Chi-square = 1.3366 (p=0.855)		
Time spent as a lone mother		
t ≤ 2 years	20.5	483
2 years < t ≤ 4 years	20.7	300
4 years < t ≤ 6 years	19.8	162
t > 6 years	10.9	101
Pearson Chi-square = 5.3405 (p=0.148)		
Number of children		
One child	19.9	549
Two children	18.8	352
Three or more children	20.0	145
Pearson Chi-square = 0.1931 (p=0.908)		
Age of youngest child		
Under 5 years	17.2	494
5-11 years	22.7	393
12-15 years	18.6	140
Missing*	21.1	19
Pearson Chi-square = 4.2394 (p=0.237)		
Type of lone mother		
Previously married	20.1	513
Previously cohabiting	20.5	302
Single never-married	16.9	231
Pearson Chi-square = 1.3208 (p=0.517)		
Ethnic group		
White	19.9	1017
Other	6.9	29
Pearson Chi-square = 3.0193 (p=0.082)		
Sample origin		
Original Essex sample	19.3	935
Extension sample	21.6	111
Pearson Chi-square = 0.3551 (p=0.551)		
Time period		
1992-1994	22.5	111
1995-1997	22.6	235
1998-2000	19.8	328
2001-2003	16.4	372
Pearson Chi-square = 4.3426 (p=0.227)		

*Expected cell counts <5

Deterioration in mental health continued…

Explanatory Variable	Per cent having a deterioration in mental health	N
Housing tenure		
Owner occupied	18.4	485
Local authority/housing association rented	19.7	426
Other rented	23.0	135
Pearson Chi-square = 1.4523 (p=0.484)		
Social class		
Professional & managerial/ technical occupation	17.8	242
Skilled non-manual/manual	18.9	444
Partly skilled/unskilled occupation	20.6	320
Never had a job	27.5	40
Pearson Chi-square = 2.4462 (p=0.485)		
Highest academic qualification		
Degree, HND, HNC, teaching qualification	20.3	153
A levels	17.8	197
O levels	18.6	399
CSE	20.3	153
None of these	22.9	144
Pearson Chi-square = 1.7920 (p=0.774)		
Employment		
Employed	18.9	546
Unemployed	22.6	53
Family care	20.1	373
Other	18.9	74
Pearson Chi-square = 0.5772 (p=0.902)		
Financial situation		
Living comfortably	16.8	113
Doing alright	16.9	326
Just about getting by	19.5	431
Finding it quite difficult	24.0	129
Finding it very difficult	31.9	47
Pearson Chi-square = 8.2555 (p=0.083)		
Receipt of income support		
No	20.4	570
Yes	18.5	476
Pearson Chi-square = 0.5737 (p=0.449)		
GHQ Score		
0	15.1	611
1	26.4	201
2	23.8	122
3	26.8	112
Pearson Chi-square = 18.9253 (p=0.000)		

Deterioration in mental health continued…

Explanatory Variable	Per cent having a deterioration in mental health	N
Region		
Southern regions	22.7	366
Northern regions	16.5	413
Wales/Scotland/N.I.	19.9	267
Pearson Chi-square = 4.7982 (p=0.091)		
Repartner		
No	18.4	919
Yes	27.6	127
Pearson Chi-square = 5.9759 (p=0.015)		
Employment change		
Moved into employment	20.2	94
Left employment	27.5	51
Stayed out of employment	20.2	406
Stayed in employment	18.0	495
Pearson Chi-square = 2.9384 (p=0.401)		
Change in number of children		
Fewer children	32.6	46
More children	15.9	44
No change in number of children	19.1	918
Empty nest	18.4	38
Pearson Chi-square = 5.5361(p=0.136)		
Change in receipt of income support		
Stay off income support	19.7	527
Move onto income support	27.9	43
Move off income support	21.9	96
Stay on income support	17.6	380
Pearson Chi-square = 3.1442(p=0.370)		
Change in financial situation		
Better off	17.7	282
Worse off	33.2	229
About the same	14.6	535
Pearson Chi-square = 36.1423 (p=0.000)		
Individual move		
Non-mover	19.2	871
Mover	21.1	175
Pearson Chi-square = 0.3600 (p=0.548)		

References

Allison, P. D. (1984). Event History Analysis: Regression for Longitudinal Event Data. Sage University Papers Series on Quantitative Applications in the Social Sciences No. 46. London, Sage.

Allison, P. D. (2002). Missing Data. Sage University Papers Series on Quantitative Applications in the Social Sciences No. 136. Thousand Oaks, CA, Sage.

Bailar, B., A. (1989). Information Needs, Surveys, and Measurement Errors. Panel Surveys. D. Kasprzyk, G. J. Duncan, G. Kalton and M. P. Singh. New York, John Wiley and Sons.

Baker, D. and K. North (1999). "Does Employment Improve the Health of Lone Mothers?" Social Science & Medicine 49: 121-131.

Barnes, M., N. Lyon, S. Morris, V. Robinson and Y. Wan Yau (2005). Family Life in Britain: Findings from the 2003 Families and Children Study (FACS). DWP Research Report No. 250. Leeds, Corporate Document Services.

Becker, G. S. (1981). A Treatise on the Family, Harvard University Press.

Becker, G. S., E. M. Landes and R. T. Michael (1977). "An Economic Analysis of Marital Instability." The Journal of Political Economy 85 (6): 1141-1188.

Benzeval, M. (1998). "The Self-Reported Health Status of Lone Parents." Social Science & Medicine 46 (10): 1337-1353.

Bernard, J. (1956). Remarriage. New York, Dryden Press. Center for Human Resource Research.

Bernhardt, E. M. (2000). Repartnering Among Swedish Men and Women: A Case Study of Emerging Patterns in the Second Demographic Transition. FFS Flagship Conference, Brussels.

Berrington, A. and I. Diamond (1999). "Marital Dissolution among the 1958 Birth Cohort: The Role of Cohabitation." Population Studies 53 (1): 19-38.

Berrington, A. and I. Diamond (2000). "Marriage or Cohabitation: A Competing Risks Analysis of First-Partnership Formation among the 1958 British Birth Cohort." Journal of the Royal Statistical Society. Series A (Statistics in Society) **163** (2): 127-151.

Berthoud, R., M. Bryan and E. Bardasi (2004). The Dynamics of Deprivation: The Relationship Between Income and Material Deprivation over time. DWP Research Report No. 219. Leeds, Corporate Document Services.

Blanc, A. K. (1987). "The Formation and Dissolution of Second Unions: Marriage and Cohabitation in Sweden and Norway." Journal of Marriage and the Family **49** (2): 391-400.

Böheim, R. and J. Ermisch. (1998). "Analysis of the Dynamics of Lone Parent Families." Working Papers of the Institute for Social and Economic Research paper 1998-08.

Booth, A. and J. N. Edwards (1992). "Starting Over: Why Remarriages Are More Unstable." Journal of Family Issues **13** (2): 179-194.

Bowling, A. (2005). Measuring health : a review of quality of life measurement scales, Maidenhead : Open University Press.

Bradshaw, J. and J. Millar (1991). Lone Parent Families in the UK. Department for Social Security Research Report No.6. London, HMSO.

Brewer, M., A. Ratcliffe and S. Smith (2007). Does Welfare Reform Affect Fertility? Evidence from the UK. CMPO Working Paper Series No. 07/177. Bristol, University of Bristol.

Bryson, A. and A. Marsh (1996). Leaving Family Credit. DSS Research Report No. 48. London, HMSO.

Bumpass, L., J. Sweet, A. and T. C. Martin (1990). "Changing Patterns of Remarriage." Journal of Marriage and the Family **52** (3): 747-756.

Carlson, M., S. Mclanahan and P. England (2004). "Union Formation in Fragile Families." Demography **41**: 237-262.

Casebourne, J. and L. Britton (2004). Lone Parents, Health and Work. <u>DWP Research Report No. 214</u>. Leeds, Corporate Document Services.

Conolly, A. and J. Kerr (2008). Families with Children in Britain: Findings from the 2006 Families and Children Study (FACS). <u>DWP REsearch Report No. 486</u>. Leeds, Corporate Document Services.

De Graaf, P. M. and M. Kalmijn (2003). "Alternative Routes in the Remarriage Market: Competing-Risk Analyses of Union Formation after Divorce." <u>Social Forces</u> **81** (4): 1459-1498.

Dean, G. and D. T. Gurak (1978). "Marital Homogamy the Second Time Around." <u>Journal of Marriage and the Family</u> **40**: 559-570.

Diamond, I. D. and J. W. McDonald (1992). Analysis of Current-Status Data. <u>Demographic Applications of Event History Analysis</u>. J. Trussell, R. Hankinson and J. Tilton. Oxford, Clarendon Press**:** 231-251.

Diggle, P. J., P. Heagerty, K. Liang and S. L. Zeger (2002). <u>Analysis of Longitudinal Data</u>. Oxford, Oxford University Press.

Ermisch, J. (1997). Pre-marital Cohabitation, Childbearing and the Creation of One Parent Families. <u>Economics of the Family</u>. C. Jonung and I. Persson. London, Routledge.

Ermisch, J. (2002). "Trying again: Repartnering after Dissolution of a Union." <u>Working Papers of the Institute for Social and Economic Research, paper 2002-19. </u>.

Ermisch, J. and M. Francesconi (2000a). "Cohabitation in Great Britain: Not for Long, But Here to Stay." <u>Journal of the Royal Statistical Society. Series A (Statistics in Society)</u> **163** (2): 153-171.

Ermisch, J. and M. Francesconi (2000b). "The Increasing Complexity of Family Relationships: Lifetime Experience of Lone Motherhood and Stepfamilies in Great Britain." <u>European Journal of Population</u> **16**: 235-249.

Ermisch, J. F., S. Jenkins and R. E. Wright (1990). Analysis of the Dynamics of Lone Parenthood: Socio-Economic Influences on Entry and Exit Rates <u>Lone-Parent Families: The Economic Challenge</u>. E. Duskin. Paris, OECD**:** 69-90.

Ermisch, J. F. and R. E. Wright (1991). "The Duration of Lone Parenthood in Great Britain." European Journal of Population. **7**: 129-158.

Feijten, P. (2005). "Union Dissolution, Unemployment and Moving Out of Homeownership,." European Sociological Review **21**: 59-71.

Feijten, P. and M. van Ham (2007). "Residential Mobility and Migration of the Divorced and Separated." Demographic Research **17**: 623-654.

Ferriss, A. L. (2002). "Does Material Well-Being Affect Non-Material Well-Being?" Social Indicators Research **60**: 275-280.

Finer, M. (1974). Report on the Committee on One-Parent Families. Cmnd 5629. London, HMSO.

Finlayson, L., R. Ford, A. Marsh, S. McKay and A. Mukherjee (2000). The British Lone Parent Cohort 1991-1998. DWP Research Report No. 128. Leeds, Corporate Document Services.

Finlayson, L. and A. Marsh (1998). Lone Parents on the Margins of Work. Department of Social Security Research Report No. 180 Leeds, Corporate Document Services.

Ford, R., A. Marsh and L. Finlayson (1998). What Happens to Lone Parents. Department for Social Security Research Report No. 77. London, The Stationary Office.

Ford, R., A. Marsh and S. McKay (1995). Changes in Lone Parenthood 1989 to 1993. Department of Social Security Research Report No. 40. London, HMSO.

Francesconi, M. and W. van der Klaauw (2007). "The Socioeconomic Consequences of "In-Work" Benefit Reform for British lone mothers." Journal of Human Resources **42** (1): 1-31.

Goldman, N., C. F. Westoff and C. Hammerslough (1984). Demography of the Marriage Market in the United States. Population Index 50: 5-25.

Graham, J. W. and S. M. Hofer (2000). Multiple Imputation in Multivariate Research. Modelling Longitudinal and Multilevel Data: Practical Issues, Applied

Approaches and Specific Examples. T. D. Little, K. U. Schnabel and J. Baumert. Mahwah, NJ, Lawrence Erlbaum: 201-218.

Groves, R., M. (1989). Survey Errors and Survey Costs. New York, John Wiley and Sons.

Haskey, J. (1983). "Marital Status before Marriage and Age at Marriage, their Influence on the Chance of Divorce " Population Trends **32**: 4-14.

Haskey, J. (1986). "One-Parent Families in Great Britain." Population Trends **45**: 5-13.

Haskey, J. (1989). "One-parent families and their Children in Great Britain: Numbers and Characteristics." Population Trends **55**: 27-33.

Haskey, J. (1991). "Estimated Numbers and Demographic Characteristics of One-Parent Families in Great Britain." Population Trends **65** (35-47).

Haskey, J. (1992). "Pre-marital Cohabitation and the Probability of Subsequent Divorce: Analyses Using New Data from the General Household Survey." Population Trends **68**: 10-19.

Haskey, J. (1993). "Trends in the Numbers of One-parent Families in Great Britain." Population Trends **71**: 26-33.

Haskey, J. (1998). "One-parent Families and their Dependent Children in Great Britain." Population Trends **91**: 5-14.

Haskey, J. (2001). "Cohabitation in Great Britain: Past, Present and Future Trends - and Attitudes." Population Trends **103**: 4-25.

Haskey, J. (2002). "One-parent Families - and the Dependent Children Living in Them - in Great Britain." Population Trends **109**: 46-57.

Hope, S., C. Power and B. Rodgers (1999a). "Does Financial Hardship Account for Elevated Psychological Distress in Lone Mothers?" Social Science & Medicine **49**: 1637-1649.

Hope, S., B. Rodgers and C. Power (1999b). "Marital Status Transitions and Psychological Distress: Longitudinal Evidence from a National Population Sample." Psychological Medicine **29**: 381-389.

Hoxhallari, L., A. Conolly and N. Lyon (2007). Families with children in Britain: findings from the 2005 Families and Children Study (FACS). DWP Research Report No. 424. Leeds, Corporate Document Services.

Hutchens, R. M. (1979). "Welfare, Remarriage, and Marital Search." The American Economic Review **69** (3): 369-379.

Iacovou, M. and R. Berthoud (2000). Parents and Employment: An Analysis of Low Income Families in the BHPS. DWP Research Report No.107. Leeds, Corporate Document Services.

Jenkins, S. P. (2000). "Modelling Household Income Dynamics." Journal of Population Economics **13**: 529-567.

Jenkins, S. P. (2004). Survival Analysis. Unpublished manuscript, Institute for Social and Economic Research, University of Essex, Colchester, UK.

Jenkins, S. P., J. A. Rigg and F. Devicienti (2001). The Dynamics of Poverty in Britain. DWP Research Report No. 157. Leeds, Corporate Document Services.

Johnson, A. (2002). Researchers Guide to using the British Household Panel Survey and other International, Longitudinal Datasets. Department for Work and Pensions Working Paper, No. 5. London, HMSO.

Kalmijn, M. (1991). From Family Origins to Individual Destinations. The Changing Nature of Homogamy in the United States. Ph.D. Dissertation. Los Angeles, University of California.

Kalmijn, M. and W. Bernasco (2001). "Joint and Separated Lifestyles in Couple Relationships." Journal of Marriage and Family **63** (3): 639-654.

Kalton, G. and D. Kasprzyk (1982). Imputing for Missing Survey Responses. Proceedings of the Survey Research Methods Section, American Statistical Association 1982, Alexandria, Va.

Kalton, G. and D. Kasprzyk (1986). "The Treatment of Missing Survey Data." Survey Methodology **12** (1): 1-16.

Kalton, G., D. Kasprzyk and D. B. McMillen (1989). Non-Sampling Errors in Panel Surveys. <u>Panel Surveys</u>. D. Kasprzyk, G. J. Duncan, G. Kalton and M. P. Singh. New York, John Wiley and Sons**:** 249-270.

Kasparova, D., A. Marsh, S. Vegeris and J. Perry (2003). Families and Children 2001: Work and Childcare. <u>DWP Research Report No. 191</u>. Leeds, Corporate Document Services.

Kiernan, K., H. Land and J. Lewis (1998). <u>Lone Motherhood in Twentieth-Century Britain</u>. Oxford, Clarendon Press.

Kiernan, K. and G. Mueller (1998). The Divorced and Who Divorces? <u>ESRC Research Centre for Analysis of Social Exclusion (CASE)</u>. London, London School of Economics. **CASEpaper 7**.

Koo, H. P., C. M. Suchindran and J. D. Griffith (1984). "The Effects of Children on Divorce and Re-marriage: A Multivariate Analysis of Life Table Probabilities." <u>Population Studies</u> **38** (3): 451-471.

Lahelma, E., S. Arber, K. Kivelä and E. Roos (2002). "Multiple Roles and Health Among British and Finnish Women: The Influence of Socioeconomic Circumstances." <u>Social Science & Medicine</u> **54**: 727-740.

Lampard, R. and K. Peggs (1999). "Repartnering: The Relevance of Parenthood and Gender to Cohabitation and Remarriage Among the Formerly Married." <u>British Journal of Sociology</u> **30** (3): 443-465.

Le Bourdais, C., H. Desrosiers and B. Laplante (1995). "Factors Related to Union Formation Among Single Mothers in Canada." <u>Journal of Marriage and the Family</u> **57** (2): 410-420.

Leete, R. (1978). "One-parent Families: Numbers and Characteristics." <u>Population Trends</u> **13**: 4-9.

Little, R. J. A. (1992). Incomplete data in Event History Analysis <u>Demographic Applications of Event History Analysis</u>. J. Trussell, R. Hankinson and J. Tilton. Oxford, Clarendon Press.

Little, R. J. A. and D. B. Rubin (1987). <u>Statistical Analysis with Missing Data</u>. New York, John Wiley and Sons.

Little, R. J. A. and D. B. Rubin (2002). <u>Statistical Analysis with Missing Data</u>. Hoboken, NJ, John Wiley and Sons.

Lynn, P. (2006). Quality Profile: British Household Panel Survey Waves 1 to 10: 1991-2000. <u>Institute for Social and Economic Research</u>. Colchester, University of Essex.

Lynn, P. and B. Taylor (1995). "On the Bias and Variance of Samples of Individuals: A Comparison of the Electoral Registers and Postcode Address File as Sampling Frames." <u>The Statistician</u> **44** (2): 173-194.

Lyon, N., M. Barnes and D. Sweiry (2006). Families with Children in Britain: Findings from the 2004 Families and Children Study (FACS). <u>DWP Research Report No. 340</u>. Leeds: Corporate Document Services.

Marsh, A., R. Ford and L. Finlayson (1997). Lone Parents, Work and Benefits. <u>Department for Social Security Research Report No. 61</u>. London, The Stationary Office.

Marsh, A., S. McKay, A. Smith and A. Stephenson (2001). Low-income Families in Britain: Work, Welfare and Social Security in 1999. <u>Department of Social Security Research Report No. 138</u>. Leeds, Corporate Document Services.

Marsh, A. and J. Perry (2003). Family Change 1991-2001. <u>DWP Research Report No. 180</u>. Leeds, Corporate Document Services.

Marsh, A. and K. Rowlingson (2002). Low- and Moderate-Income Families in Britain: Changes in 1999 and 2000. <u>DWP Research Report No.165</u>. Leeds, Corporate Document Services.

Marsh, A. and S. Vegeris (2004). The British Lone Parent Cohort and their Children 1991-2001. <u>DWP Research Report No. 209</u>. Leeds, Corporate Document Services.

Mastekaasa, A. (1994). "The Subjective Well-Being of the Previously Married: The Importance of Unmarried Cohabitation and Time Since Widowhood or Divorce." Social Forces **73** (2): 665-692.

McCarthy, P. and B. Simpson (1991). Issues in Post-Divorce Housing: Family Policy or Housing Policy? Aldershot, Avebury.

McKay, S. (2002). Low/moderate-Income Families in Britain: Work, Working Families' Tax Credit and Childcare in 2000. DWP Research Report No. 161. Leeds, Corporate Document Services.

McKay, S. (2003). The Dynamics of Lone Parents, Employment and Poverty in Great Britain. Sociologia e politica sociale. available at: http://www.benefits.org.uk/pubs.htm. **n.2**.

McKay, S. and A. Marsh (1994). Lone Parents and Work. Department for Social Security Research Report No. 25. London, The Stationary Office.

Meggiolaro, S. and F. Ongaro (2008). "Repartnering after Marital Dissolution: Does Context Play a Role." Demographic Research **19**: 1913-1934.

Menard, S. (2002). Longitudinal Research. Sage University Papers Series on Quantitative Applications in the Social Sciences No. 76. Thousand Oaks, CA, Sage.

Millar, J. (1989). Poverty and the Lone Parent Family. Avebury, Gower.

Mott, F. L. and S. F. Moore (1983). "The Tempo of Remarriage among Young American Women." Journal of Marriage and the Family **45** (2): 427-436.

Murphy, M. J. (1985). "Demographic and Socio-economic Influences on Recent British Marital Breakdown Patterns." Population Studies **39** (3): 441-460.

O'Connor, T. G., J. Dunn, J. M. Jenkins, K. Pickering and J. O. N. Rasbash (2001). "Family Settings and Children's Adjustment: Differential Adjustment Within and Across Families." The British Journal of Psychiatry **179** (2): 110-115.

Paull, G. (2002). "Biases in the Reporting of Labour Market Dynamics." Institute for Fiscal Studies Working Papers WP02/10.

Paull, G. (2007). Partnership Transitions and Mother's Employment. <u>DWP Resarch Report No. 452</u>. Leeds, Corporate Document Services.

Payne, J. and M. Range (1998). Lone Parents' Lives: An Analysis of Partnership Fertility, Employment and Housing Histories among the 1958 Birth Cohort. <u>Department for Social Security Research Report No. 78</u>. London, The Stationary Office.

Peters, E. H. (1988). "Retrospective Versus Panel Data in Analyzing Lifecycle Events." <u>The Journal of Human Resources</u> **23** (4): 488-513.

Pevalin, D. J. and J. Ermisch (2004). "Cohabiting Unions, Repartnering and Mental Health." <u>Psychological Medicine</u> **34**: 1553-1559.

Poortman, A.-R. (2000). "Sex Differences in the Economic Consequences of Separation. A Panel Study of the Netherlands." <u>European Sociological Review</u> **16** (4): 367-383.

Poortman, A.-R. (2007). "The First Cut is the Deepest? The Role of Relationship Career for Union Formation." <u>European Sociological Review</u> **23** (5): 585-598.

Popay, J. and G. Jones (1990). Patterns of Health and Illness Among Lone-Parent Families. <u>Lone Parenthood: Coping with Constraints and Making Opportunities</u>. M. Hardey and G. Crow. London, Harvester/Wheatsheaf**:** 66-87.

Rowlingson, K. (2001). Understanding Family Trends in the UK. <u>Families, Poverty, Work and Care. A Review of the Literature on Lone Parents and Low-income Couple Families with Children</u>. J. Millar and T. Ridge. London, HMSO**:** 19-37.

Rowlingson, K. and S. McKay (1998). <u>The Growth of Lone Parenthood: Diversity and Dynamics</u>. London, Policy Studies Institute.

Shouls, S., M. Whitehead, B. Burström and F. Diderichsen (1999). "The Health and Socio-economic Circumstances of British Lone Mothers Over the Last Two Decades." <u>Population Trends</u> **95**: 41-46.

Singer, J. D. and J. B. Willett (2003). <u>Applied Longitudinal Data Analysis: Modelling Change and Event Occurrence</u>. Oxford, Oxford University Press.

Smallwood, S. and B. Wilson (2007). Focus on Families. Basingstoke, Palgrave Macmillan.

Smock, P. J. (1990). "Remarriage Patterns of Black and White Women: Reassessing the Role of Educational Attainment." Demography **27** (3): 467-473.

South, S. J., K. D. Crowder and K. Trent (1998). "Children's Residential Mobility and Neighborhood Environment following Parental Divorce and Remarriage." Social Forces **77** (2): 667-693.

Spain, D. (1990). Housing Quality and Affordability among Female Householders. Housing Demography: Linking Demographic Structure and Housing Markets. D. Myers. Wisconsin, University of Wisconsin Press**:** 86-108.

Stack, S. and J. R. Eshleman (1998). "Marital Status and Happiness: A 17-Nation Study." Journal of Marriage and the Family **60**: 527-536.

StataCorp (2005). Stata Statistical Software: Release 9. College Station, TX.

Steele, F. (2005). "Event History Analysis." NCRM Methods Review Papers NCRM/004.

Sudman, S. and N. Bradburn (1973). "Effects of Time and Memory Factors on Response in Surveys." Journal of the American Statistical Association **68** (344): 805-815.

Sullivan, O. (1986). "Housing Movements of the Divorced and Separated." Housing Studies **1**: 35-48.

Sweet, J. A. (1973). Differentials in Remarriage Probabilities. CDE Working Paper 73-29. Center for Demography and Ecology, University of Wisconsin-Madison.

Taylor, M. F., J. Brice, N. Buck and E. Prentice-Lane (2006). British Household Panel Survey User Manual Volume A: Introduction, Technical Report and Appendices. Colchester, University of Essex.

Thornton, A., W. G. Axinn and D. H. Hill (1992). "Reciprocal Effects of Religiosity, Cohabitation, and Marriage." The American Journal of Sociology **98** (3): 628-651.

Vegeris, S. and J. Perry (2003). Families and Children 2001: Living Standards and the Children. DWP Research Report No. 190. Leeds, Corporate Document Services.

Wade, T. J. and D. J. Pevalin (2004). "Marital Transitions and Mental Health." Journal of Health and Social Behaviour **45** (2): 155-170.

Wallerstein, J. S. and S. Blakeslee (1989). Second Chances: Men, Women, and Children a Decade after Divorce, Ticknor and Fields.

Watson, N. and M. Wooden. (2006). "Modelling Longitudinal Survey Response: The Experience of the HILDA Survey." HILDA Project Discussion Paper Series No. 2/06.

Whitehead, M., B. Burström and F. Diderichsen (2000). "Social Policies and the Pathways to Inequalities in Health: A Comparative Analysis of Lone Mothers in Britain and Sweden." Social Science & Medicine **50**: 255-270.

Williams, K., S. Sassler and L. M. Nicholson (2008). "For Better or Worse? The Consequences of Marriage and Cohabitation for Single Mothers." Social Forces **86** (4): 1481-1512.

Williams, K. and D. Umberson (2004). "Marital Status, Marital Transitions, and Health: A Gendered Life Course Perspective." Journal of Health and Social Behavior **45** (1): 81-98.

Williams, R. L. (2000). "A note on robust variance estimation for clustered correlated data." Biometrics (56): 645-646.

Wilson, P. R. and D. J. Elliot (1987). "An Evaluation of the Postcode Address File as a Sampling Frame and it's Use Within OPCS." Journal of the Royal Statistical Society. Series A (General) **150** (3): 230-240.

Wu, Z. and T. R. Balakrishnan (1994). "Cohabitation after Marital Disruption in Canada." Journal of Marriage and the Family **56** (3): 723-734.

Wu, Z. and C. M. Schimmele (2005). "Repartnering After First Union Disruption." Journal of Marriage and Family **67**: 27-36.

Yamaguchi, K. (1991). Event History Analysis. Applied Social Research Methods Series, Volume 28. Newbury Park, CA, Sage.