Exploring the Cohabitation Effect: Untangling the Life Course Diversity of Cohabiting Unions

by

Todd Forrest Martin

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF

Doctor of Philosophy

in

THE FACULTY OF GRADUATE STUDIES

(Sociology)

THE UNIVERSITY OF BRITISH COLUMBIA

(Vancouver)

January 2013

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Abstract

The cohabitation effect has been identified as a factor in former cohabitors' increased marital instability. Current research on this effect is mixed. Recent data indicates that the cohabitation effect has not only diminished in current cohorts but has now reversed. These findings indicate former cohabitors now have enhanced odds of marital stability. In order to examine the changing dynamics of cohabitation and its effect on later marital stability, this research utilizes cross tabulations, optimal matching analysis and logistic regression to study The British Household Panel Survey, a nationally representative panel data set. First unions that went straight to marriage were compared to first unions that were cohabiting unions but later transformed to marriages. Life course theory and diffusion theory are used to provide the framework for testing whether a cohabitation effects exists, how it may have changed over time, and how predictive variables are changing. The social and historical context of cohabitation is established by looking at the recent histories of marriage, divorce and cohabitation. Cohabitation typologies are presented as well as alternative explanations for the cohabitation effect such as institutionalism, sliding verse deciding, diffusion, sequencing and age and period and cohort effects. The data shows a clearly established cohort effect at the turn of the twentieth century. This effect remained stable until the post WWII period where it began to diminish, paralleling the rise in the adoption and social acceptance of pre-marital cohabitation. As cohabitation became more normative, the effect becomes less discernible. Logistic regression highlighted five main variables of importance across pathways and time: age at first union, diffusion, education, religious and traditional family

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values. The implication of how these variables changed is discussed in the context of a proposal to move from an emphasis on the cohabitation effect to an emphasis on the effect of each of these variables on union pathway selection and later marital stability.

Preface

Chapter 2 is adapted from material I was responsible for writing and is published in White, J. M., Martin, T. F. & Bartolic, S. (2012). *Families Across the Life Course*. Scarborough, Ontario: Pearson Education Canada.

I presented a version of Chapter 7.4 in 2009 at the Theory Construction and Research Methodology Workshop *- Families in a Multicultural World*, NCFR, San Francisco, CA.

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Glossary

Current Cohabitors – individuals currently in a cohabiting relationship

Episode – a time period measuring the duration in a particular state

Event – a life occurrence defined as a change in status resulting in a transition from one state to another such as single to married or unemployed to employed

Former Cohabitor – individuals who cohabited prior to marriage

Latent Clusters – similar life course trajectories of a definitive time period that are grouped together through a process known as optimal matching

Non-Cohabitors – individuals whose first union is marriage without prior cohabitation

Normative – the most frequent occurrence in reference to life course pathways

- **Norms** societal levels views regarding the acceptance level of social behaviors and rules
- **Spell** a series of episodes in the same state
- State a qualitative category occupied from a mutually exclusive and exhaustive list of possibilities
- **Trajectory** the complete collection of episodes and spells between two predetermined time periods
- Transitions specific events that move individuals in or out of an institutional context
- Wave A, I, R three waves of data used in this research project representing collection dates of 1991, 2000 and 2009

Acknowledgements

It is with deep appreciation that I acknowledge the contributions, efforts and sacrifices made on my behalf that have allowed me to accomplish this research. Without these people I would not have had the support or motivation to complete the work begun.

I would like to begin by thanking all the faculty and staff at UBC and especially those in the Sociology Department. In particular I would like to point out Dr. S. Fuller whose patience and work ethic allowed me to firstly gain a working knowledge of STATA and Optimal Matching Analysis but secondly and more importantly taught and exemplified a feminist world view to someone who would have remained generally ignorant otherwise.

The contribution of my dissertation committee is acknowledge with enduring gratitude. The support and guidance of Dr. N. Lauster and Dr. C. Yodanis was instrumental in pushing me to a greater quality of research than I thought I was capable. Their expertise and reputation inspired me to produce a document of quality I hoped was worthy of their approval. From an academic and professional prospective, the one person who pushed, prodded and carried me to completion is the same person who helped me on a regular basis to feel that I could accomplish a task that I believed was beyond me. That person literally pulled me up a mountain I didn't believe I could climb. Dr. J. White has been an instructor, advisor, mentor and friend. Having been able to work with him over the years is more valuable to me than this research, but together they make me a better person and scholar.

This work would not exist were it not for the huge sacrifices made by my wife and children. This project exists because they were willing to go without the time and attention they deserved. Throughout this project I was continually reminded of how blessed I am to have them and share this accomplishment with them. Special thanks are owed to my parents, who brought me into this world and raised me to not shy away from challenges. They both passed on unique contributions that allowed me to succeed many years later. Finally I would like to acknowledge my maternal grandmother, Edna Deadman, who taught me a love for learning at an early age.

Chapter 1 : Introduction

1.1 Scope and Focus of the Project

This project seeks to examine the association of pre-marital cohabitation with higher marriage dissolution rates, also known as the cohabitation effect. The changing normative attitudes and social acceptance of cohabitation as a life stage of family formation has resulted in an ever increasing and diverse population who enter such unions. In light of conflicting research reports regarding cohabitation's impact on later marital stability, this research seeks to examine the diversity of life course pathways across time associated with those who choose to cohabit prior to marriage in contrast to those who move straight to marriage. The focus will be on the changing cultural acceptance of pre-marital cohabitation over time as a factor in explaining the impact on later marital or union stability.

After laying a foundation of the recent history of cohabitation in the Western world, a summary of current relevant research will be presented with a focus on current research paradigms used for the study of cohabitation. Selection and Experience explanations will receive attention as a result of these two concepts forming the dominant schools of explaining the cohabitation effect. Following this will be a discussion of the utilized theoretical frameworks used to explore the developed research questions. These theories will be life course theory, with a special emphasis on age, cohort and period effects as well as diffusion theory as utilized by Liefbroer and Dourleijn (2006) in their study of the cohabitation effect in 16 European countries.

A critique of current studies will lead to the research questions and three fold methodological process that will be used to describe and test the presented hypotheses. The project will focus on selections variables identified from concurrent studies for further examination in an attempt to better understand the changing nature of cohabitation patterns and what mechanisms are at work across time.

The methodical section will employy descriptive cross tabulation data, optimal matching analysis and logistic regression using odds ratios. Following the data presentation and hypothesis testing this project will conclude with a discussion of the findings and conclusion regarding the data's support of the tested hypotheses. Finally this project will propose an alternative approach to conceptualizing, framing and studying the cohabitation effect with an emphasis on the near universal acceptance and practice of premarital cohabitation.

Chapter 2 : Marriage, Divorce and Cohabitation

Humans have formed intimate unions across millennia. Their very survival has depended on it. It has only been the last few hundred years that anthropologists have brought to light to the average person the varied and diverse patterns in which people have formed and dissolved these unions over cultures and time. This chapter will focus on the recent history of marriage, divorce and cohabitation in the western cultural context. After a general western overview is given, a more detailed contextualization of recent union formation patterns in Britain will be presented. Following the historical presentation will be a discussion about cohabitation including its unpredicted rapid rise as well as the controversy about the effects of cohabitation on later martial and non-marital union stability.

2.1 Historical Background

The 20th century has been the scene of rapid social change. Educational, political, economic and religious institutions have been changing and morphing as the century progressed. These institutional changes have impacted individuals and families in dramatic ways. Gender roles have changed, family mobility has increased, fertility has declined and union formation patterns have become more fluid and less stable. Marriage has historically been given a privileged position in society (Thornton, Axinn, & Xie, 2007). Marriage has been preferred to remaining single as a result of economic necessity and social stigma regarding non-marital sexuality. The latter third of the 20th century has seen an unprecedented shift from

marriage being the monolithic pattern for intimate union formation to the present where it is viewed as an optional arrangement by most.

At the same time that the institution of marriage was becoming more marginalized, divorce rates had already begun to rise. Throughout much of the modern world divorce rates have been historically very low as a result of normative attitudes and legal processes making them difficult to obtain. The influence of the Christian faith during the last two thousand years has been important in keeping the rate low. The Catholic Church continues to be particularly influential as illustrated by much lower rates of divorce in Catholic influenced countries like Italy and Spain. Northern Ireland legalized divorce only recently after a very closely contested referendum in 1995. At the beginning of the 20th century divorces were almost nonexistent in the British Commonwealth. Canada recorded only 11 divorces in 1900. England and Wales recorded 494 divorces, Scotland 142 and Australia reported 364 for the entire year (Hunt, 1909).

These numbers are in marked contrast to the United States which recorded 55,502 during the same year (Hunt, 1909). Divorce rates have continually remained higher in the United States throughout the 20th century. A detailed discussion of uniqueness of the US data along with possible explanations is presented in depth by Cherlin (2009). The United States continues to have high divorce rates giving it the distinction of the highest in the developed world (Cherlin, 2009; Goode, 1970). The divorce rates continued to rise through the 1960s and 1970s in all western nations. The only exception to this continued rise in divorce rates was the brief period

following World War II where the post war economic boom created a unique set of social conditions that halted the climb temporarily.

The trend for divorce rates continued upward once again in the 1960s. Legislative changes easing the requirements for divorce occurred in several western nations which led to sudden spikes in the rates of divorce. In Canada the Divorce Act of 1968 was the first of two pieces of legislation that made divorce easier to obtain. It granted divorce for couples who had experienced marital breakdown and been separated for three years. Grounds-based divorce continued to exist as well. Following this legislation, the number of divorces almost doubled between 1968 and 1970. In 1985 the laws changed again and reduced the waiting period from three years to one. Once again, the divorce rate followed in an upward trend. The number of divorces reaching 90,900 in the following year (Oderkirk, 1994). British marital law changes and the increase of divorce rates run parallel to Canada. In 1969 divorce was made available to couples in Britain who had lived apart for two years (or five years if only one partner wanted a divorce). No longer was it necessary to prove grounds for divorce. As a result the number of divorces climbed from 27,000 in 1961 to 80,000 in 1971 followed by 162,000 in 1983 (Smith, 1997).

2.2 Causes

The rapid rise and sustained high levels of divorce in North America and Europe led to a question about cause. Near the end of the 20th century L. K. White (1990) provided a meta-analysis of the divorce literature and clustered her findings into three main categories: macro-structural influences, the life course and demographics, and family process (L. K. White, 1990).

Some researchers proposed that the institutional importance of the family was found to be waning with the advent of other competing institutions (Becker, 1981). Schoen, Urton, Woodrow, and Bai (1985), p. 113 state: "Recent economic changes have undermined the social and economic forces that maintained the institution of marriage." The rising level of women in the paid work force was correlated to an increase in divorce, as was a rise in individualism and lack of social integration.

More complex family forms and secondary marriages were found to be at a greater risk of dissolving (T. C. Martin & Bumpass, 1989; L. K. White & Booth, 1985). L. K. White (1990) identifies this as a second major explanation of rising divorce rates. Researchers have identified several demographic and life course issues related to higher divorce. They include the intergenerational impact of divorce (McLanahan & Bumpass, 1988); cohabitation and with premarital pregnancy and childbirth as well as early age of marriage (T. C. Martin & Bumpass, 1989; McLanahan & Bumpass, 1988; Teachman, 1983; J. M. White, 1987). The birth of a child reduced the likelihood of divorce in the year immediately following the birth, and additional births had an additive effect in preventing divorce. Couples who were childless were more likely to divorce and the process, when it happened, occurred more rapidly (Booth, Johnson, White, & Edwards, 1986; Wineberg, 1988). Morgan, Lye, and Condran (1988) found that parents of sons are less likely to divorce than parents of daughters.

The final cluster of the decade in review by L. K. White (1990) focused on the process of divorce. Most of the findings supported a rational choice or exchange theory approach. Couples with high costs for divorce as a result of the presence of

children or relatively low alternatives to divorce because of age or employment status (particularly women), were much less likely to entertain the divorce option. General predictors of divorce such as socioeconomic status and women's labour force participation also received attention. More family income, less divorce and more female employment, more divorce were the general findings. Conflicting reports of women's labour status and family stability gave some hope that maybe things were changing for the better, but White points out that the bulk of the research from the 80's still points to the conflict that home care and paid employment for women creates for family stability.

Teachman (2002) found that the research-identified covariates of divorce have remained relatively stable across more recent cohorts. Using data from the National Survey of Family Growth, Teachman was able to study marriages that spanned a 35-year period (1950 to 1984). Apart from race, the other major variables of age at marriage, education, premarital births and conception, religion, and parental divorce continued to be predictors of divorce.

Amato (2010), like L. K. White (1990) 20 years earlier, reviewed a decade of research in the area. He, like Teachman, found a consistency of predictors. To illustrate the need for looking at more of the nuances at work in divorce, (Amato, 2010) uses cohabitation as an illustration of the need to look more closely at the correlate's role in the process. Even with the majority of premarital cohabitation findings concluding a negative effect, some research has found the opposite. This illustrates the complicated and complex nature of studying the interconnectedness of social phenomenon across the lives of diverse populations in different time periods.

2.3 Transition to Adulthood

Traditionally marriage has a played an important social role in the transition to adulthood (F. Goldscheider & Goldscheider, 1999). Marriage has been closely connected with legitimized childbirth and important for establishing socially recognized kinship structures which also affect social identity and inheritance rights. As cohabitation becomes more normative, some of the distinctions between marriage and cohabitation are being removed. Marriage no longer serves as the sole means to legitimize a committed relationships and non-marital fertility is rising both for cohabiters and non-cohabiters. The lack of social clarity surrounding cohabitation is a result of the varied purposes it serves as well as the heterogeneous pathways used to enter and exit it. It has been demonstrated that cohabitation serves different purposes based on racial and ethnic differences (Manning, 1993; Manning & Smock, 2002), gender and life course stage (Moustgaard & Martikainen, 2009; Oppenheimer, 2003), economic status (Carlson, McLanahan, & England, 2004) and historic time periods (Schoen, 1992)

Macro institutions such as education, work places and judicial legislation, structure and regulate the life course (D. P. Hogan & Astone, 1986). These regulations change over periods and cohorts and as a result change the way in which transitions from adolescents to adulthood occur. Greater tolerance of nonmarital sexuality and elongated educational careers have been identified as a couple of the reasons for delayed marriage and parenthood among current young adults (Arnett, 2004). As a result young adults are delaying marriage and choosing to cohabit instead (Thornton et al., 2007). Passage to adulthood has typically been

associated with five major events: leaving home, finishing education, getting a job, being married and having children. As a result of extended education all of these steps have been delayed compared to previous cohorts (Beaujot & Kerr, 2007). Not only has the transition delayed, but it also seems less permanent and is non-linear and subject to reversals (Mitchell, 2006).

A recent analysis of Canadian census data revealed that over the last 30 years (1971-2001) the number of transitions by age of young adults continues to decline (Clark, 2007). In 2001 the typical 25 year old had gone through the same number of transitions as a 22 year old did in 1971. In comparison, a 25 year old in 1971 would parallel where a 30 year olds would be today. Studies stretching over longer periods of time indicate that during the two World Wars, the time of transitioning in these five areas was compressed but after the World War II until the present, the transitions have gradually extended into later ages.

2.4 Rise of Cohabitation

Over the past 40 years cohabitation has moved from being viewed as a deviant form of union formation to the preferred social norm that precedes marriage and acts for many as a trial marriage. The dramatic change in the number of adopters over just a few decades bears this out. About 10% of marriages between 1965 and 1974 included cohabitation as a transition state. By the early 1990s, 55% of American marriages were preceded by cohabitation (Bumpass & Lu, 2000). Internationally the developed world shows even a greater adoption of cohabitation. 77% of married couples in Australia cohabit before marriage (Buchler, Baxter,

Haynes, & Western, 2009). In Norway, approximately 80% of individuals cohabit before their first marriage (Wiik, 2009). At the turn of the 21st century, Canada mirrored France, New Zealand, Mexico and Finland with approximately 16-18% of all current unions being in the form of non-marital cohabitation. Canada illustrates the diverse regional patterns of cohabitation in the difference between the province of Quebec and the rest of the country. In 2001, non-marital unions in Quebec represented 29.8% of all current unions, compared to 11.7% for the rest of the country (Ambert, 2005). A concern for cohabitation research has been the heterogeneity of cohabiting couples. Union formation pathways are diverging from historical normative patterns and the question is whether the life course is becoming too de-standardized to be of empirical value (Brückner & Mayer, 2005; Rindfuss, Swicegood, & Rosenfeld, 1987). Previous research pointing to the diverse and disordered nature of family related transitions gives some support to these concerns (D. P. Hogan & Astone, 1986). This rise in divergent life course pathways involving cohabitation has led to increased research on the impact of pre-marital cohabitation on later martial stability.

2.5 Effect on Later Marital Stability

2.5.1 Contradictions in the Literature

Research on premarital cohabitation has consistently shown the negative impact on later marital stability and quality (DeMaris & Rao, 1992; Hall & Zhao, 1995; Lichter, Qian, & Mellott, 2006; Liefbroer & Dourleijn, 2006; Lillard, Brien, & Waite, 1995; Sassler, 2004; Teachman & Polonko, 1990). Researchers are divided

on the explanation for this persistent correlation. Early research in the area suggested that selectivity (Lillard et al., 1995; Phillips & Sweeney, 2005; Smock, 2000) may be the cause of this negative impact. Other researchers (Axinn & Barber, 1997; Axinn & Thornton, 1992; Brown, Sanchez, Nock, & Wright, 2006; DeMaris & Rao, 1992) suggested that the actual *experience* of cohabitation was the precursor to the poorer outcomes. Another group of researchers do not see this as a contradiction but as inaccurate conclusions based on analysis of earlier cohorts of cohabiters who did so when cohabitation was not considered a normative pathway to marriage. These researchers point to more recent cohort studies that do not reflect the earlier findings (Brown, Lee, & Bulanda, 2006; de Vaus, Qu, & Weston, 2005; Hewitt & de Vaus, 2009; Hewitt, Western, & Baxter, 2006; Schoen, 1992; Seltzer, 2004). Yet other current literature seems to support earlier conclusions regarding the negative impact of premarital cohabitation on later marriage outcomes (Dush, Cohan, & Amato, 2003; Jose, O'Leary, & Moyer, 2010; Kline et al., 2004; Phillips & Sweeney, 2005).

2.5.2 Non-Marital Cohabitation's Negative Effect

Cohabitation's lingering negative impact on union stability, despite its general social acceptance, continues to attract researcher's interest. Smock, Casper, and Wyse (2008) suggest that part of the explanation may lie in conclusions based on the use of older panel studies that do not reflect a current understanding and meaning of the term cohabitation. Measurement issues may be at work as a result of definitions, timing ambiguity and problems with retrospective data collection.

Discussion of the cohabitation effect has centered on the two explanations previously mentioned (Axinn & Thornton, 1992; Smock, 2000): *selection* or the preexisting characteristics and life course patterns of people who cohabit, and *experience* or the explanation that there is something about cohabitation itself that increases the risk for distress, divorce, or both.

Selection variables have typically been related to socio demographic factors such as religiosity, number of previous marriages, education level, income, presence of children, and age. Identifying selection effect variables is viewed as a means to more accurately predict who will cohabit, who will marry and the various combinations and timing of the two. Some studies have shown that selection accounts for a portion of the cohabitation effect (Lillard et al., 1995; Woods & Emery, 2002). A number of studies highlight that selection does not fully account for the cohabitation effect (Dush et al., 2003; Jose et al., 2010; Stafford, Kline, & Rankin, 2004; Stanley, Rhoades, & Markman, 2006). Those who began cohabiting prior to a formal engagement were found to have more negative interactions, lower levels of interpersonal commitment to their partners, lower relationship quality, and lower levels of confidence in their relationships compared to those who cohabited only after engagement or not at all before marriage. After controlling for socioeconomic factor and other previously identified influential variables such as ethnicity, education, income, length of relationship, religiosity, and duration of premarital cohabitation, the effect remained (Kline et al., 2004). These studies suggest that there may be something about the experience of cohabitation that is associated with risk in later marriage.

Selection variables are identified as those main qualities or characteristics in the individual or individual's context that have been identified to be associated with poor relationship skills and outcomes. In other words, individuals who cohabit make poor marriage material (Booth et al., 1986). Research has indicated that there are multiple risk factors associated with cohabitation and divorce. These include a weaker commitment to marriage, greater acceptance of divorce and poor relationship skills. (Lillard et al., 1995; Phillips & Sweeney, 2005; Smock, 2000). Some recent work has shown that premarital sexuality, with a partner other than your future spouse, may elevate the cohabitation effect (Teachman, 2003). Other research points to an elevated risk for those who cohabit multiple times (Lichter & Qian, 2008). The life course may also provide an explanation for the selection argument. Different life histories may lead more to cohabitation than marriage. This is more than just noting events in their family history, but the timing, order and duration of those events. The number and length of cohabitation spells may provide insight into increased marital instability later on in the relationship.

Support for the experience explanation comes from research that has demonstrated that cohabitation has been associated with increased levels of acceptance of divorce (Axinn & Thornton, 1992). Axinn has also reported that the experience of cohabitation with multiple partners has led participants to have a lower value of marriage (Axinn & Barber, 1997). Axinn and Barber (1997) demonstrated that frequency of cohabitation and length of cohabitation are important in explaining the diminished value of marriage and childrearing over time. The experience of cohabitation may erode the motivation for, and commitment to marriage. Axinn and

Thornton (1992) found that the experience of cohabitation was associated with increased acceptance of divorce, which may help explain links with actual divorce.

As cohabitation becomes more normative, the experience of cohabitation may also be changing. The rate at which partners are transitioning out of cohabitation, into marriage, has been decreasing in the United States (Raley & Bumpass, 2003), Canada (Smock & Gupta, 2002) and other countries as well (Liefbroer & Dourleijn, 2006). Smock et al. (2008) attribute this trend to the idea that fewer couples see cohabitation as a precursor to marriage but as an opportunity to give their relationship a test drive. This changing view of cohabitation will be accessed across generations by looking at the pathways that led up to cohabiting.

Schoen (1992) and Teachman (2003) predicted, based on life course theory, that as cohabitation becomes more normative, the negative outcomes on later marriage would begin to subside and that these unions would resemble outcomes consistent with more traditional forms of union formation. While there is some limited evidence that the effect of premarital cohabitation on the risk of marital dissolution may have reduced for more recent birth cohorts (Brown, Lee, et al., 2006; de Vaus et al., 2005; Hewitt & de Vaus, 2009; Schoen, 1992; Seltzer, 2004), other recent research suggests this is not the case (Dush et al., 2003; Kline et al., 2004). Jose et al. (2010) did a recent meta-analysis of 26 studies of cohabitation effects on marital stability and quality collected from diverse journals. Their findings reiterate that premarital cohabitation continues to be associated with negative outcomes.

2.6 Cohabitation in a Recent British Context.

Britain's pattern of cohabitation adoption makes it uniquely suited for this project. It represents a more aggressive pattern of adoption than North American populations, with the exception of Quebec, as a result provides a more developed pattern to examine. Marriage, divorce and cohabitation in Britain have followed a similar pattern to western and northern Europe. In the early part of the 20th century, the marriage pattern followed what Hajnal (1965) referred to as the "European pattern" which was characterized by late marriage and high proportion never marrying. In the 1930's this pattern shifted to earlier marriages with higher proportions entering marriage at some point in their lives. Legislative changes after World War II regarding divorce caused as sharp an increase as in other countries after similar changes. A man was slightly more likely to get married than a women in the 1900's (Schoen & Baj, 1984). Since the second decade of the century, this trend has reversed. Appendix C provides a detailed summary of marital status for earlier cohort differences between males and female in England and Wales (Schoen & Baj, 1984). The table shows that with increased life expectancy and less child mortality that both men and women were more likely to marry as the decades progressed. The table also shows that age at marriage decreased as did the age at divorce. The length of marriages decreased yet the proportion of one's life spent never married decreased up until 1945 with an increase noted in the 1975 birth cohort. Research showed that the marriage rates in England and Wales began to fall sharply beginning in 1972 (Eldridge & Kiernan, 1985; Kiernan & Eldridge, 1985). These observations regarding younger cohorts reveal the beginning of the trend to

postpone, delay or even reject marriage. The connection between delayed marriage and the rise of cohabitation is important because it shows that the desire for union formation has remained relatively stable yet the form in which it takes has changed in response to other changing institutional norms, such as elongated education and more permissive sexual mores. Eldridge and Kiernan (1985) made the statement during the infancy of popular cohabitation research that, "As yet, cohabitation is largely a childfree, relatively short, transitional form of behavior preceding marriage" (p. 329) provides the snapshot of a trend that is moving quickly. More prophetically they go on to state,

> It is possible that, as it becomes more the 'norm', more young people might decide to cohabit for longer and a minority may choose to never formalize their union; but as yet we have no statistical evidence that the incidence of more permanent consensual unions has increased recently. (p. 329)

Unions formed in the 1970s represent a type of watershed of the changing trends in marriage, divorce and cohabitation as they represent the cohort that diverged more distinctly from recent historical patterns. The life course of these individuals tends to be more heterogeneous than previous ones. A study of the 1958 birth cohort of Britain reveals that by age 33, 39% of men and 43% of women followed a traditional life course of direct and intact marriage (Berrington & Diamond, 2000). With the vast majority of people experiencing some form of partnership by

age 33 (89% of men and 93% of women), the propensity for union formation has not change dramatically since the turn of the century, but the pathways in and out certainly have. Berrington and Diamond (2000) in their analysis of the National Child Development Study indicate that entry into marriage peak during their early 20s for women and mid 20s for men, while cohabitation patterns increase during later teen years followed by a relatively high but stable pattern until age 30 when it begins to decline. Those who remain single in their later 20s are described as either being advantaged men and women who have experienced a high rate of cohabitation or those who are more disadvantaged who have low rates of partnership formation. The data seem to indicate that selection has a filtering affect at both SES extremes. The authors also make an important observation about this 1958 birth cohort.

"... the increasing acceptance of cohabitation over the last two decades means that cohort members who remain single into their late 20s during the late 1980s were making the decision to marry or cohabit in a different social and moral climate from their predecessors." (p. 129)

The 1958 cohort was looked at from a sequence perspective and how father's social class influenced these pathways. Their data show a clear pattern of life course pathways associated with a father's social class measured at age 7. The higher the class status the more likely both males and females are to remain single. Men are more likely to marry by age 33 than cohabit but there is no difference for

women. Pregnancy prior to or in the absence of a partnership is highest for those with low social class and least for those whose fathers reported a higher class. This relationship existed for both men and women.

Variables known to be associated with the union formation patterns have remained relatively consistent over that latter half of the 20th century. Thornton et al. (2007) provide an in-depth discussion of these variables from a North American perspective. Variables like parental education, social class, premarital pregnancy as well as individual characteristics such as religiosity, education and occupational social class are also found to be important predictors by Berrington and Diamond (2000). They found parental socioeconomic status is inversely correlated to the speed of entry into ones first partnership yet parental class was not associated with early entry into cohabiting relationships for women. As individuals age, controlling for their education and occupational status, the influence of the parent's SES disappears. Participants whose mothers gave birth in their teens were also more likely to get married before 20 years of age. Although premarital conception was not associated with a propensity to cohabit, parental separation was with almost the same 33% increase in the likelihood of cohabiting over those respondents whose parents did not separate. Educational enrollment did not delay entry into cohabitation but did so for marriage. This influence diminishes by the mid-20s. Perhaps most important in this finding is that once residential status is entered into the model, the educational differences almost disappear, indicating that those who live away from a parental home may be the most influential factor regarding the choice to cohabit or not. Religiosity, like in the greater body of literature, is found to

greatly reduce the likelihood of cohabiting. One out of eight single men who reported a minimum of monthly church attendance was likely to cohabit compared to 1 out of 3 for the non-religious.

Union formation is part of a more complex set of life course events. The sequence of these events is an important distinction when studying the impact of different life course pathways on later life outcomes. Life course theory sees the timing and sequencing of life events as a strategic adaptation process in which individuals or groups respond to the timing of external influences and make decisions that help to achieve desired goals. People will marry, divorce, remain single or cohabit in response to structural factors such as normative constraints and historical events. An increasing number of studies employ life course research in the study of cohabitation because of its emphasis on timing and sequencing of transitions (Elder & Giele, 1998). Longitudinal research on cohabitation has recently been used to look at the implications of serial cohabitation (Lichter & Qian, 2008), precursors to young women's family formation pathways (Amato et al., 2008) as well as attitudes and expectations of union formation in relation to actual outcomes (Guzzo, 2009; Kneale, Coast, & Stillwell, 2009).

The life course is a series of concurrent changes and transitions across a variety of individual experiences such as educational, labour force attachment, union formation and residential changes. Changes in one domain influence or restrain changes in another (Liefbroer, Gerritsen, & Gierveld, 1994). For example, research shows that advanced education discourages union formation (Lichter, McLaughlin, Kephart, & Landry, 1992) and that the choice between marriage and cohabitation is

related to labour force attachment, especially for males (Oppenheimer, 2003). The reality of individual life courses is that they are made up of many different life dimensions which are continually influencing each other. Guzzo (2006) states that, "Certainly, conceptual models that are inclusive of multiple domains and allow flexibility in timing of events and transitions are more reflective of the reality in which people are making union decisions" (p. 385).

Concerns about trends, patterns and outcomes of cohabitation in Britain have been raised by some special interest groups. The Jubilee Centre describes itself as an independent think tank offering a Christian perspective on a wide range of social topics (Hayward & Brandon, 2011). The think tank provides several summary statements about the current trends. They conclude that:

- Cohabitation is generally a short lived union with almost half of the unions dissolving before two years.
- Cohabitation is less stable than it was 15 years ago
- This instability also applies when children are present with married couples ten times more likely to stay together until their child is 16 (75% vs. 7%).
- Cohabitation doesn't effectively serve as a trial marriage. Compared to those couples who went straight to marriage, cohabiting couple who marry showed a 60% increase in the likelihood of divorce.
- This increased likelihood of divorce remains stable when factoring in the total length of the cohabitation and married stages of the relationship.
- Marriages of couples who did not cohabit prior to marriage lasted four years longer than those who cohabited prior to marriage (11.5 years vs. 7.5 years).

The Jubilee project report highlights some of the concerns about the current trends regarding union formations in Britain. The research presented in this project supports the changing nature of these marriage and cohabiting relationships. Whether those changes are good or bad is beyond the scope of this project. It is more concerned with documenting the changes occurring in one nation to reveal the real pattern over time and highlight the changing influence of mechanisms at work in cohabitations influence on later martial stability. This research is anchored in the current literature.

Chapter 3 : Theory

3.1 Life Course Theory

The life course perspective is viewed by some as the pre-eminent theoretical orientation in the study of lives even though this is a recent development (Elder, Johnson, & Crosnoe, 2003). Elder, Johnson & Crosnoe state that the life histories, pathways and trajectories were largely ignored by early social scientists. K. U. Mayer (2009) describes life course research as entering a stage of maturity and utilized by a diverse group of social science disciplines to study human lives between birth and death. In regards to the use of the life course perspective in the field of sociology, he states that a unified sociological theory of the life course has been difficult to establish because of the many underlying mechanisms occurring across multiple social levels (K. U. Mayer, 2009).

The lack of an explanatory theory can be partially attributed to the descriptive rather than confirmatory nature of sociological life course research. Yet the life course framework does provide guiding heuristics (K. U. Mayer, 2009). The following emerging consensus of the unique contributions of the life course perspective is put forward by Mayer as he cites (Elder et al., 2003; Karl Ulrich Mayer, 2004; Settersten, 2003):

 Changes in human lives (as changes in personal characteristics and transitions between states) are considered over a long stretch of lifetime, such as from childhood to old age, and not just as particular episodes, such as transition to marriage or first birth, or narrow life phases. There is also the

strong assumption that prior life history has strong impacts on later life outcomes.

- Changes in human lives are investigated across a larger series of cohorts rather than by a few cohorts or synthetic cohorts based on cross-sectional data (lifetime and historical time).
- Changes in human lives are studied across life domains, such as work and family, often implying interdisciplinary approaches.
- Life course development is analyzed as the outcome of personal characteristics and individual action as well as of cultural frames and institutional and structural conditions (relating micro, meso, and macro levels of analysis, structure, and agency).
- Human lives are viewed in collective contexts (couples, families, cohorts).
- Life course/cohort analysis is essential for social policies with a paradigm shift from curative to preventive intervention.

In addition to these unifying themes Mayer lists the following conceptual tools provided by life course sociology: age norms (on time, off time, and their presumed consequences); time (event, state, and duration) dependency; transitions and trajectories; as well as turning points.

3.1.1 Transitions and trajectories

Sociology of the life course is centered around the influence that historical context and institutional structures have on the life course. The interaction of multiple dimensions of the life course such as family, labour force attachment and education

create a diverse set of life course trajectories (Elder, 1995). Making sense of life course patterns is theoretically reliant on the dual concepts of discrete transitions and holist trajectories. Aisenbrey and Fasang (2010) cite (Sackmann & Wingens, 2001) as indicating that life course theory sees trajectories as theoretically superior because it looks at life transition events in the context of surrounding events, not in isolation. Yet, the majority of empirical research employing quantitative methods are based on the probability and timing of transitions.

In their summary of the distinctions between trajectories and transitions, Aisenbrey and Fasang (2010), state that the analysis of transitions in sociology has been the domain of event history analysis and sees trajectories as best served through sequence analysis. They see the combination of these two concepts, trajectories and transitions; and approaches, event history and sequence analysis, as facilitating a broader theoretical scope than most current empirical application.

3.1.2 Structure & agency

The life course is lived out by individual actors but is affected by larger structural influences. Multiple intersecting experiences across diverse domains such as work, education and relationship status all come together to create a set of heterogeneous courses. Life course researchers initially embraced the idea that earlier life events set a clear trajectory for later life outcomes but are increasingly more likely to see the life course of individuals being affected by institutional and agency factors throughout the duration of the life course. For example the work of Laub and Sampson (2003) on juvenile offenders across their life course used a mixed model approach that combined latent cluster analysis with hierarchical effects
models to show how a group of similar juvenile offenders had very divergent lives across time. They make a strong case for the impact that both current individual choice and institutional influence have on redirecting life courses that seemed set earlier in life.

The role of both structural influences and actor agency play a part in directing life courses. Decisions to marry, cohabit or divorce are influenced by social norms regarding education, paid work and non-marital sexual mores. Individual preferences also influence relationship patterns and union formation. The life course is then shaped not only by historical events but also by current context and this must be incorporated into research employing this perspective.

3.1.3 Age, period and cohort effects

Perhaps the most influential contribution of life course theory to social research is its incorporation of time and the role time plays out in age, period and cohorts. The German sociologist Karl Mannheim (1956) wrote in the early 20th century, "Even if the rest of one's life consisted of one long process of negation and destruction of the natural world view acquired in youth, the determining influence of those early impressions would still be predominant." p. 298. The importance of one's birth on a person's worldview was also reinforced by the Spanish sociologist Ortega y Gasset (1933) who believed that the concept of generation was the most important in human history. Life course theory explores the influencing agents on change across the life of individuals and it understands that the age of an individual, as well as the historical context in which they live and grow up in is highly influential in shaping their lives. Life course differs from the concept of life cycle in that it

allows for diversity in events and roles that may not occur in a linear sequencing pattern but the accumulation of these events over time constitutes their actual life course (Elder, 1975).

An age effect is the understanding that the age at which individuals experience a socio-historical event will have differing effects on that individual. The impact of 9/11 is different for children then for young adults. A cohort effect can be defined as a distinctive formative experience or event that members of a cohort or cohorts share and shape their collective identity for the rest of their lives. A period effect is similar to a cohort effect in that an event shapes a group of people over their life course but a period effect tends to be defined by a geo-political or socio-historical event that has influence across all ages and cohorts.

Elder's study of the influence of the Great Depression on the lives of children is a seminal study in life course research. It is valuable in that he illustrates statistically and graphically the distinctive nature of the influence of age, period and cohort on the development of these children. Older children and younger children were not affected in a uniform fashion by the Great Depression. This led to his conclusion that a cohort effect exists when historical context differentiates the way an age grouped set of the population experience historical events (Elder, 1974, 1999). Or in the words of (Riley, 1998), "Because society changes, members of different cohorts cannot age the same way." (p. 42). Figure 3.1 shows graphically the intersecting of age, period and cohort. This chart provides the basic structure for this project. The knowledge that different cohorts and different ages across different

periods have experienced cohabitation differently can be more easily visualized with Figure 3.1 in mind.

According to life course theory, how people think about the social world around them is heavily dependent on what the world was like when they were growing up (Alwin & McCammon, 2007). In the area of cohabitation research, social change has been linked to cohort differences across time. Further contribution has been made by looking at the impressionability of adults across different ages. Youth and young adulthood is a time that represents the intersection of life history within a social context that helps to define individual and group identity. This statement does not suggest that identify development becomes set at this age or that it can't continue to change and develop over time. It is a statement that points to a time period in an individual's life that is particularly important in the life course. Alwin and McCammon (2007) point to research that supports the idea that many of our most important life events are self-described to have occurred in this stage of the life course (Schuman & Scott, 1989; Scott & Zac, 1993).

This impressionable time is not lost on social scientists and requires the avoidance of what (Riley, 1973) calls the *life course fallacy* and the *fallacy of cohort centrism*. The *life course fallacy* incorrectly describes the process of aging as being able to be determined from looking at cross sectional data. This approach assumes that all cohorts are experiencing their social world in exactly the same way. This has been demonstrated not to be true and is important in understanding marriage, divorce and cohabitation across cohorts. The *fallacy of cohort centrism* incorrectly assumes that every cohort has experienced a particular social phenomenon exactly

the same way as one's own cohort. The author highlights that early life course research interpreted data without reference or respect to historical trends which is why the results are often not generally applicable beyond the time period in which the research was imbedded.

Cohort size is also an important concept to consider in understanding difference across time. Cohort replacement is understood to play an important role in social change. Cohort size is generally equated with cohort influence. The larger the cohort, the more influence they will have across the life span. The baby boom generation / cohort(s) have continued to be influential in many aspects of society including economic and social variations. Understanding the influence of larger cohorts will help to explain the dramatic changes in the cohabitation patterns of the 1960s and 1970s.





Birth Cohorts

3.2 Diffusion Theory

In addition to the life course approach, this project will also use diffusion theory to study the changing union formation patterns of 20th century Britain. Diffusion theory has its roots in the study of the adoption of new ideas (Rogers, 1962) and is consistent with the life course framework's interest in structure and agency. It can be understood as the process and rate of adoption of new ideas by a given population. A classic definition of diffusion is the following: "(Diffusion) is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas (Rogers, 1983) p. 18. Anthropologists of the 19th century used it to explain the proliferation of culture from one people group to another. Pemberton (1936) illustrated the concept through postage stamp adoption rates, as well the adoption of both municipal tax rate limitations and compulsory education among states. These concepts were quickly employed by business theorists and integrated into marketing plans in order to increase sales and profits. Sociologists concerned with social change, social movements and collective behaviour have also applied the concepts to their work. The phrase, early adopters was attributed to Rogers (1962) who utilized a standard bell curve to describe the way new ideas are adopted by the public. The first 2.5% represent the innovators. The next 13.5% are the early adopters, followed by the early majority (34%), the late majority (34%) and the final 16% make up the laggards. Each category is calculated using standard deviations from the mean. When the cumulative population is taken into account, an S shape curve is formed. Diffusion theory has been applied to

family planning models (Casterline & Cohen, 2001; Murphy, 2004; Palloni, 2001) as well other family research topics including cohabitation (Di Giulio & Rosina, 2007; Hewitt & de Vaus, 2009; Matysiak, 2009; Nazio, 2007). The rapid rise in the adoption of cohabitation over the last 50 years makes the use of diffusion theory suitable in helping to better understand the phenomenon.

Diffusion theory has been most frequently applied to the study of cohabitation in the European context where cross national comparisons provide distinct populations to study. European countries demonstrate an expansive range of adoption rates. Current Swedish unions are made up of almost 40% cohabitors, compared to only 5% in Portugal (Kiernan, 2004). The range of those who have ever cohabited is equally broad with Kiernan reporting from the Fertility and Family Survey that 93% of Swedish 25-29 years have cohabited some time in their lives contrasted to only 14% in Italy. The relatively recent rise or increased adoption of cohabitation is what diffusion theory attempts to address. It has little to say regarding historically low rates of non-marital unions that to Kiernan existed in Sweden (Trost, 1978), Britain (Roberts, 1990), France (Villeneuve-Gokalp, 1991) and Germany (Abrams, 2007). These authors identify that those who historically cohabited represented a select group of people who represented the intellectually elite or the extremely poor. The former group was making a statement against the state church and the latter was unable to afford to marry.

By the 1960s a new form of cohabitation began to emerge, one that was becoming socially accepted by a growing proportion of the population. Across the Western world, the post-World War II era of younger marriages and increased

fertility was beginning to be interrupted by cohabitation, and then later replaced by it, as the preferred union formation pathway. Diffusion or the adoption of cohabitation was rapid yet unsystematic. Research shows earlier adoption in the Nordic countries and slower adoption in the Southern European countries. Early adopters at first appear to be more common among the lower class, yet the spread of adoption seemed to accelerate among university students. In the case of Britain, the adoption of cohabitation was so rapid and so broad it is difficult from the data to identify the innovators (Kiernan, 1989). She concludes that based on her tabulations from the Eurobarometer 54.1, 55, 55.1 55.10VR and 55.2 that apart from a few exceptions cohabitation is being practiced by a broad spectrum of society in Europe.

The diversity of the European cohabitation adoption patterns makes it ideally suited to study diffusion theory. Most of this research has focused on the individual actor as the innovator or adopter. Liefbroer and Dourleijn (2006) used the data that Kiernan gathered to look at diffusion from a national perspective. They looked at the same Fertility and Family Surveys data as Kiernan in order to look at the impact of ever cohabitation saturation rates on later marital stability. The focus of research builds on previous work that demonstrated the negative relationship between premarital cohabitation and later marital stability may not be universal. When looking at just current cohabitors in comparison to those that went straight to marriage, it was found that East Germany reported an increased risk of 50% for union dissolution while Norway and Switzerland data revealed a 500% increase. When comparing former cohabitors (those who cohabited prior to marriage) to non-cohabitors (those who went straight to marriage) it was found that five European

countries were shown not to have an elevated risk of marital dissolution after cohabitation by Kiernan (2002). In fact, she reports that Norway reported an increased risk of .85 or an actual benefit to cohabitation while Sweden showed a relative risk of 1.5. These differences led Liefbroer and Dourleijn (2006) to formulate a study of European countries' level of ever cohabiting population rates influence on later marital stability.

Liefbroer and Dourleijn (2006) insured their research was focused on the role of changing norms regarding the social acceptance of cohabitation as a stage of marriage and/or as a marriage alternative. The fact that innovation is usually adopted among a smaller group before spreading to the general population (Jaakkola, Aromaa, & Cantell, 1984) is the basis for the rational to looking at diffusion as an explanation of national differences of subsequent negative marital outcomes for former cohabitors. Some North American research supports the hypothesis that as cohabitation becomes more common, the distinctives between those who cohabit before marriage and those who don't will diminish (Schoen, 1992).

(Liefbroer & Dourleijn, 2006) present the argument that with diffusion you will have early adopters and late adopters or "laggards" with the general population fitting in between these extremes. The importance of this approach is that the selection argument is being tested for both early adopters and late adopters. Religiosity is often identified as a barrier to acceptance and participation in cohabitation. Religion has been hypothesized in the literature as a mechanism that may continue to lead some straight to marriage rather than cohabit even when the

majority of the population has cohabited at some time in their lives. Late or nonadopters may be as distinct and indicative of selectivity as the innovators were in practicing cohabitation when it was not socially acceptable to do. Marital instability will be most prevalent when cohabitation occurs in a social context when just earlier adopters or late adopters dominate the landscape. Liefbroer and Dourleijn state, "If the proportion of cohabitors and non-cohabitors is more or less in equilibrium, selection processes might still be operative, but certainly to a lesser extent than when the proportion of cohabitors is either very high or very low (p. 206)."

Using data from Kiernan (2002), Liefbroer and Dourleijn hypothesized that the variation in observed post cohabitation marital stability in Europe would be curvilinear as shown in Figure 3.2 adopted from (Liefbroer & Dourleijn, 2006) Differences should be higher when only a small portion of the population

Figure 3.2 - Risk of divorce in relationship to proportion ever cohabiting



Is either choosing to cohabit or a small portion of the population is choosing not to cohabit. Their basic premise is that when a country has a strong social preference for marriage or cohabitation then the impact on marital stability will be more pronounced. Control variables known to influence cohabitation were included in an attempt to isolate the impact of the union itself. These covariates included birth cohort, parental divorce, and place of residence during childhood, age at the start of the union, educational attainment, activity status and parenthood.

3.2.1 Collective norms verses perceived norms

Diffusion theory is predicated on social norms and their level of acceptance and their pathway of permeation across a group. Social acceptance of cohabitation as both a stage of marriage and as an alternative to marriage is an example of a social norm that has changed dramatically over the past 50 years. Yet acceptance levels and levels of practice have been varied across groups and cultures. Lapinski and Rimal (2005) provide a detailed look at implication for norms based research from a communication lens. Relevant to this research is their discussion of collective verses perceived norms and their treatment of the topic of moderators between descriptive norms and behavior. Collective norms are held at the group level. A society's view of non-marital cohabitation would be an example of a collective norm. Because collective norms are seldom codified, the individual actors embedded in a social system, may look at the norm from different perspectives. A perceived norm is the actor's interpretation of the norm in their everyday life. How a person perceives collective norms may vary depending on a variety of other variables including personal level variables. Lapinski and Rimal

(2005) further expand this dichotomy by looking at the distinction between injunctive and descriptive norms. Injunctive norms carry with them some form of social sanction. They carry with them a proscriptive function or they influence individuals to do what should be done (Cialdini, Reno, & Kallgren, 1990). Descriptive norms are beliefs about the actual practices of one's reference or social group. Both injunctive and descriptive norms apply to the study of cohabitation. How is the practice perceived? How is it practiced and what type of sanctions may apply to those who practice or don't practice it? Early data on the role of cohabitation on later marital stability supports the injunctive norm being applied. As indicated earlier, the collective body of literature on premarital cohabitation showed almost universal support for negative correlation between pre-marital cohabitation and later marital stability. The role of diffusion would support the diminishing of this penalty as the behavior becomes more normative.

Chapter 4 : Existing Frameworks for Studying and Classifying Cohabitation Effect Differences and Changes

The decade of the 1960s is when researchers often describe the "new cohabitation" as having its genesis (Hoem & Hoem, 1988; Kiernan, 2001). By new these researchers are acknowledging that cohabitation or non-marital unions are not new but have historical roots in both customs and recorded history. The main distinction between the "old" and the "new" form of cohabitation is the spread of its adoption from a small fringe group typically characterized as poorer or older, to the more educated and younger population. This change or transition from one type of group to a different type of group illustrates the transformation of cohabitation from a deviant practice embraced by a select segment of society to a practice that is embraced by a majority of the population across all socio-economic segments. The transition from being single to being in a cohabiting union is described as a process rather than an event (Thornton et al., 2007). This process implies changes of states over time. These states have been organized according to the distinct purposes attach to cohabiting (Casper & Bianchi, 2002; Heuveline & Timberlake, 2004; Le Bourdais & Lapierre-Adamcyk, 2004; Thornton et al., 2007), by the purposefulness of entry into the union (Stanley et al., 2006) as well as the developmental stages that populations and individuals transit through as they move from rejecting cohabitation to fully accepting it as a marital alternative (Hoem & Hoem, 1988; Kiernan, 2001; Liefbroer & Dourleijn, 2006). This chapter will provide an overview of the existing frameworks for studying the varied forms and functions cohabitation serves and will

look at the typologies of cohabitation, pathways into cohabitation and stages of cohabitation. This approach will provide a context for this project and its findings.

4.1 Typologies of Cohabitation

4.1.1 Thornton, Axinn & Xie (2007)

This extensive volume on marriage, divorce and cohabitation provides a brief historical overview of the institution of marriage and the ways in which cohabitation may be viewed in today's social context. The authors examine detailed multigenerational data in order to better understand the distal and proximate explanatory variables associated with marriage and cohabitation patterns with an emphasis on what distinguished those who do cohabit prior to marriage and those that do not. The use of cohabitation in comparison to the use of marriage provides the basis for the schemas presented. Those schemas are placed on a continuum from cohabitation being synonymous to marriage to cohabitation being more similar to being single. The idea that cohabitation is a distinct state of union is also presented.

4.1.1.1 Being single and cohabiting as equivalent contrasts to marriage

This option places marriage in a preferred position. It is given marriage privileged social status based on its historical tradition as being the only legitimate option to being single. Cohabitation is treated the same as dating or going steady. Transitions from being single to marriage or cohabitation to marriage combine to form the category, unmarried – married. The advantage of this position is that it recognizes marriage as having historical, legal, social and religious precedent. That it is the main option for family formation and one that has an expectation of

permanence. Cohabitation research, particularly U.S. based, has utilized this approach in the early study of cohabitation (F. K. Goldscheider & Waite, 1991; Lehrer, 2000, 2004; Oppenheimer, 2000) to name a few. The primary weakness of this approach is that it misses the similarities found in marriage and cohabiting unions as well as the differences between being single and cohabiting.

4.1.1.2 Marriage and cohabitation as equivalent contrasts to being single

This approach follows a similar rational to the previous approach. Residential status and sexual intimacy are deemed important in defining the difference of marriage/cohabitation in relation to being single. No real difference between marriage and cohabitation is acknowledged and state transition would be recognized as moving from non-union to union status. This approach has been used in several studies (Clarkberg, Stolzenberg, & Waite, 1995; Myers, 2000) but it also misses some of the important legal and social distinctions between marriage and cohabitation.

4.1.1.3 Marriage and cohabitation as independent alternatives to being single

In this third approach marriage and cohabitation are viewed as distinct unions that people enter as they transition from being single. As a result three distinct states and their transition rates are calculated as opposed to combining single to cohabitation and single to marriage into one union formation rate. This approach provides challenges by making the analysis more complicated and it does not adequately deal with those who transition from cohabitation into marriage.

4.1.1.4 Marriage and cohabitation as a choice conditional on the decision to form a union

In this conceptualization couples who decide to take their relationship to a more serious level are understood to have a choice to enter marriage or enter cohabitation. This approach continues to see marriage and cohabitation as distinct unions but also distinct from being single. It also does not presuppose that the desire to enter a cohabiting relationship necessarily assumes that the relationship may later transition to marriage. In other words marriages and cohabitation are considered competing alternatives to one another. The transition rate is calculated in two steps. The first step considers those transitioning out of singlehood into a committed union defined by either marriage or cohabitation. The second step is to look at the ratio between those who marry and those who cohabit in relationship to the total number leaving the single state. A major advantage of this approach is that it considers marriage and cohabitation as moving from a less committed relationship to a more committed relationship. The major drawback is that in the real world many couples do not make a distinct decision to move their relationship from separate singleness to cohabitation. Instead they may find the transition is less clear and as a result may be better characterized as sliding into a cohabiting relationship rather than deciding to enter one (Lindsay, 2000; Stanley et al., 2006).

4.1.1.5 Cohabitation as part of the marriage process

The final typology that guides the work of Thornton et al. (2007) views cohabitation as part of the marriage process. With most people indicating they desire to be married at some point in their lives, cohabitation is viewed as an

intermediate state in the marriage process. This has been a popular approach to the study of cohabitation because the issues of duration of cohabitation (Teachman & Polonko, 1990) and the frequency of cohabitation (Lichter & Qian, 2008) become important predictors of preparing a couple for marriage (Bumpass, Sweet, & Cherlin, 1991). The obvious benefit of this approach is that it reflects real life experiences for many couples particularly in the United States. First, a couple decides whether to cohabit or not, then based on the perceived success of that experience decide to marry or not. The ambiguity often associated with entering a cohabiting union, as discussed above, is a definite weakness with this approach despite its popularity among researchers.

4.1.2 Casper and Bianchi (2002)

Using data from the first wave of the Nation Survey of Families and Households, Casper and Bianchi (2002) derived four typologies of the purposes and functions that cohabitation served for this U.S. sample. Based on cohabitor's responses to several questions regarding expectations to marry, these researchers found support for distinct purposes that cohabitation serves which adds support to the heterogeneity of cohabiting couples. The 1987/88 sample reveals that about two thirds of those cohabiting view their relationship as serving some function related to later marriage. One third of the current cohabitors, are in their relationship with no expectation of the union moving on to marriage.

4.1.2.1 Precursor to marriage

The first group of cohabitors sees their relationship as a precursor to marriage. Casper and Bianchi (2002) cite Brown and Booth (1996) to show that

those who cohabited with an intention to marry do not exhibit the cohabitation effect when later marital stability is compared to those not cohabiting prior to marriage. This group represents 46% of all the cohabiting couples. These relationships were also the most likely to transition into marriage with 52% doing so between waves.

4.1.2.2 Trial marriage

A second group who saw their relationship as a testing ground or trial marriage represented 15% of the sample. This group remained uncertain about their current relationship but generally were supporters of the institution of marriage and believe they will marry at some point in the future. This group was most likely (51%) to be separated from their current partner within 5-7 years after the survey.

4.1.2.3 Substitute for marriage

The smallest group (10%) saw their relationship as a replacement for marriage and had no intention of seeing it transition into marriage. It is not surprising then that this group was the least likely to get married by the next survey wave although 1 in 4 did so.

4.1.2.4 Co-residential dating

The final group of cohabitors (29%) saw their relationship as one of convenience. They were characterized as being unsure of their relationship and their views on the institution of marriage. This group also demonstrates the changing nature of people's views and goals especially in young adulthood. Of this group one third were married within the next 5 years.

4.1.3 Heuveline and Timberlake (2004)

Heuveline and Timberlake (2004) look at three decisions that unmarried couples make (a. to live together, b. to have children together and c. to stay together) in order to establish six ideal types of cohabitation (Table 4.1). The results of their findings reveal 6 clusters containing the 17 nations included in their study. Those countries with a low incidence of cohabitation included Italy, Poland and Spain. Belgium, the Czech Republic, Hungary and Switzerland were clustered in the Prelude to Marriage type. This group is characterized by higher incidence of cohabitation that lasted for a shorter period of time, end in marriage and precedes the birth of children. The countries that are grouped together in the Stage in *Marriage* process treat cohabitation as a transition stage that tends to last longer. This group is more likely to have children in the union but marriage follows shortly after their arrival. This group includes Austria, Finland, Germany, Latvia and Slovenia. The United States and New Zealand represent the Alternative to Single category that is characterized by cohabiting unions that are brief, non-reproductive and end in separation rather than marriage. The Alternative to Marriage category, defined by cohabitating couples who remain in their relationship for longer periods, less likely to get married and expose children to the cohabiting union longer, contains Canada and France. The last category has Sweden alone and is described as Indistinguishable from Marriage. This final group is similar to the Alternative to Marriage group in that there is a higher incidence of cohabitation lasting longer periods of time. Children are also frequently exposed to their parent's cohabitation in this group but for a shorter time because the parents do not view cohabitation as an

alternative to marriage and are ambivalent towards the difference. Heuveline and Timberlake see these couples entering marriage for pragmatic reasons rather than avoiding it on principal.

Heuveline and Timberlake (2004) make some important summary points regarding the regionality of their research. They note that the three non-European Countries in the study, Canada, New Zealand and the United States, were difficult to categorize because of the heterogeneity of the population. As mentioned earlier, Canada deals with two founding languages yet all three countries are ethnically diverse as well. The authors caution about making sweeping statements about these population's cohabiting patterns. What should be taken from these findings is the importance of contextual factors that may influence the union formation patterns of adults across the life course and how children are also influenced in different ways as a result.

Table 4-1 - Heuveline and Timberlake cohabitation typology (2004)

		Empirical Indicators and Predictions					
		Adults			Children		
Role	Description	Incidence of Own Cohabitation	Median Duration	% Ending in Marriage	Exposure to Parental Cohabitation	Median Duration	% Ending in Marriage
A. Marginal	Cohabitation is not prevalent and is likely discouraged by public attitudes and policies.	Lower	Shorter	Higher	Lower	Shorter	Higher
B. Prelude to marriage	Exists as a prereproductive phase for adults. Unions tend to be brief and nonreproductive, but end in marriage.	Higher	Shorter	Higher	Lower	Shorter	Higher
C. Stage in marriage process	Exists as a transitory phase in reproduction. Unions tend to be longer, and children are more likely to be born into a cohabitation than in (B), but with short duration of exposure.	Higher	Shorter	Higher	Higher	Shorter	Higher
D. Alternative to single	Cohabitation primarily for brief, nonreproductive unions that end in separation instead of marriage.	Higher	Shorter	Lower	Lower	Shorter	Lower
E. Alternative to marriage	Is a discrete family component. Adulthood cohabitation prevalent, and for longer duration than in (C). Low proportion leading to marriage, more exposure to cohabitation during childhood than in (C), and for longer duration.	Higher	Longer	Lower	Higher	Longer	Lower
F. Indistinguishable from marriage	Little social distinction between cohabitation and marriage. Children more likely than in (E) to experience the marriage of parents because cohabitation not seen as an alternative to marriage.	Higher	Longer	Lower	Higher	Longer	Higher

4.2 Pathways into Cohabitation

Union formation pathways are diverse and heterogeneous yet they are not random. Social norms, personal preferences and human agency are all at work guiding individuals in certain directions while creating challenges or barriers from going in other directions. The diverse nature of who cohabits, when they cohabit, for how long they cohabit and in conjunction with other life course events is well documented. Other factor influencing pathways into cohabitation include legal issues around property and child custody.

Transition rates across the life course have also been found to be important in the attempts to disentangle the cohabitation effect. The importance of frequent transitions across the life course are often missed as a result of focusing on only one aspect of the life course such as labour force attachment, family formation, housing or parenthood. Life course trajectories are seldom linear and often involve "U-turns, detours and yo-yo movements in and out of statuses (P. Martin, Schoon, & Ross, 2008). Specific to cohabitation spells, Lichter and Qian (2008) found female serial cohabiters who eventually married increased their odds of divorce by 100 percent compared to those who only cohabited with their future husband even after controlling for past fertility and socioeconomic characteristics. Complex life courses differ in outcome from those life courses which are more stable (Stanley, Rhoades, Amato, Markman, & Johnson, 2010; Teachman, 2008).

After several decades of research, the academic community still cannot articulate a solid answer to the "why" question regarding the negative influence of premarital cohabitation on later marital quality and stability. (Stanley et al., 2006) write:

Although there have been notable advances in knowledge, we know far less than we would like about why, and under what circumstances, the cohabitation effect occurs. This is in part because of limitations in the existing literature, the three greatest being (a) a lack of theory, (b) a general dearth of longitudinal methods with sufficient sensitivity and quality of measurement, and (c) the fact that a vast number of studies published on the cohabitation effect are from a single, now aging data set (the National Survey of Families and Households). (pp. 499-500)

New longitudinal data sets and improved research methods that allow the analysis of diverse whole life sequences permit this project to add to the body of research by seeking to answer why and under what circumstances pre-marital cohabitation continues to be associated with detrimental outcomes in marriage. This project will also add to the existing research by delineating simplified life course pathways leading to union formation and then following those unions over time and by cohorts. The multiple measured time frames will allow trends among the same population to be traced. The unit of analysis under study will be individuals. Many of the measures will be accessed from the perspective of the female in the relationship.

4.2.1 Sliders vs. Deciders

Life course pathways are not always carefully selected and predetermined by the participants. Agency is influenced by macro institutional influences often in a way

that is unperceivable by the actors. In addition to the macro influence on the actors, the interpretive school of sociology would also point to the different ways that individuals in a relationship may see that relationship (Weber, 1978). For example, one partner may interpret moving in together as a signal that the relationship is progressing toward greater commitment, which will culminate in marriage, while the other partner may see the change in status as providing a greater economic benefit, or reduction in commuting time to see their partner. It may involve a concrete plan to pool some resources together or it may be a gradual process over an extended length of time.

The deliberateness of a couple's entry into cohabitating relationships is receiving more attention as a means to provide possible clues to its negative correlation to marital outcomes. This is especially important for those who see cohabitation as a process that is to be used to filter potential long term marriage partners from short term non-marital ones. The concept of *sliding* has been used by (Stanley et al., 2006) to describe the process or gradual steps that culminate in a coresidential intimate relationship. They followed up research by Manning and Smock (2005) that found many, if not most, couples slide from non-cohabitation to cohabitation before fully realizing what is happening. An Australian study involving focus groups found that most couples say cohabitation "just happened," indicating a lack of formal decision about the transition to cohabitation (Lindsay, 2000). The assumption is that these "decisionless" union formations would be associated with lengthier spells of cohabitation regardless of whether it becomes a pathway to marriage or is dissolved. Lengthier spells of cohabitation have been shown to have

important implications on later marriage outcomes. Earlier research (Teachman & Polonko, 1990) showed that couples who cohabited for short periods (less than six months) prior to marriage did not differ in later marital stability from those who took a direct pathway to marriage. Teachman and Polonko (1990) concluded that this was likely the result of engaged couples moving in together prior to their imminent wedding. More current research in Australia has provided support for the benefits of longer spells of cohabitation. de Vaus et al. (2005) found that after controlling for selection effects, those who cohabitated longer than three years prior to marriage, had a separation rate significantly lower than for direct marriages.

4.3 Stage of Cohabitation

Up to this point cohabitation typologies or ideal types have been presented from various researchers in their study of non-marital union formation patterns. The final approach is a developmental model and although segments of this work overlap with some of the others already presented, this approach assumes that populations as well as individuals proceed through various stages as non-marital cohabitation moves from a small segment of the population that are typically poor and socially nominal to a normative first union state. In other words, these stages represent the pathways through the "new cohabitation" as presented by Kiernan (2001) as well as Hoem and Hoem (1988). Comparative data can then be used to classify countries or populations in one of the four stages. The application to individual life courses can also be made. Kiernan goes on to make the strong assumption that once a society has reached a certain stage, that there is little reason to believe they would return to

an earlier stage. In making this assumption, Kiernan is proposing a linear unidirectional model of cohabitation adoption and diffusion. This approach will later be tested by Liefbroer and Dourleijn (2006) and form the basis for one of three analytical sections of this project.

4.3.1 Kieran (2001)

4.3.1.1 Avant-garde – young well educated

The first stage of the "new cohabitation" as identified by Hoem and Hoem (1988) is the transition from a non-marital cohabitation that has existed for centuries, engaged in by the poor, uneducated and socially obscure, to a group of more highly educated and avant-garde segment of society. Hoem and Hoem (1988) note that cohabitation among Swedish students doubled between the period of 1936-1940 and the 1946-1950 birth cohorts. This stage is characterized as a small (although expanding and socially more advantaged) proportion of society cohabiting while most proceed directly to marriage.

4.3.1.2 Prelude to marriage or a probation period

The second stage of cohabitation development is synonymous with several other studies that see the rise of cohabitation as a new stage in the life course and consistent with large portions of the population still wanting to experience marriage at some point in their lives. This stage sees cohabitation as a trial or testing period to assess the potential for a longer term committed relationship in the form of marriage. The union during this stage will typically remain childless.

4.3.1.3 Alternative to marriage

In this third stage, cohabitation becomes an alternative to marriage. In this stage, there is no strong social sanction that will motivate a couple to marry. Children are frequently brought into these unions without any impetus toward marriage. The length of these unions begins to parallel those of marriage.

4.3.1.4 Indistinguishable from marriage

The final stage of cohabitation adoption or development is when marriage and cohabitation are indistinguishable. Children are born into non-marital and marital unions with similar frequency and the quality and duration of the relationship is not distinguishable from married unions. This is considered the final stage of development with the process complete.

4.3.2 Liefbroer & Dourleijn (2006)

Using Kiernan's developmental stages, Liefbroer and Dourleijn (2006) test diffusion of cohabitation across Europe. Looking at sixteen European nations in their research, they examine the role of diffusion in explaining why marital stability outcomes differ for those who previously had cohabited. The results of their research indicate that women in cohabiting relationships are much more likely to face a union breakup than women who married right away. The variation among the countries is quite large. Most countries show an increase risk of 3 to 4 times more than that of those who marry straight away with Spain showing an increased risk of 11 times. In some countries former cohabitors or those who cohabit prior to marriage fare much better. Norway, for example, shows a decreased risk of later marital dissolution for those who cohabited prior to marriage. For half the countries there was no statistical

difference in risks between those who went straight to marriage and those who cohabited before marriage, indicating whether one cohabited or not made no difference in their later martial stability. The cross cultural study by Liefbroer and Dourleijn (2006) is focused on the role of changing norms regarding the social acceptance of cohabitation as a stage of marriage and/or as a marriage alternative. Using diffusion as an explanation of national differences of subsequent negative marital outcomes for cohabitors, they base their hypothesis on the fact that innovation is usually adopted among a smaller group before spreading to the general population (Jaakkola et al., 1984). This is not a new idea but similar to Schoen's test on cohort data in the United States (Schoen, 1992). His research supports the hypothesis that as cohabitation becomes more common, the differences between former cohabitors and non-cohabitors will diminish to the point of no longer distinguishing between the two groups.

In the area of cohabitation studies, religiosity has been identified as a barrier to acceptance and participation in cohabitation. Late adopters would be assumed to be made up of highly religious people in whom cohabitation would be inconsistent with their moral beliefs. The authors use this line of reasoning to show that the selection hypothesis (people with less relationship skills and or relationship commitment tend to be more likely to cohabit) explains later marital instability. Marital instability will be most prevalent when cohabitation occurs in a social context when just earlier adopters or late adopters dominate the landscape. They state, "If the proportion of cohabitors and non-cohabitors is more or less in equilibrium,

selection processes might still be operative, but certainly to a lesser extent than when the proportion of cohabitors is either very high or very low (p. 206)."

Using data from (Kiernan, 2002) cohabitation study of European countries, Liefbroer and Dourleijn hypothesize that the variation in observed post cohabitation marital stability in Europe will be a result of diffusion difference in those countries studied. Specifically stated, they expect the relationship to be curvilinear. In other words, the differences in later marital stability should be higher when only a small portion of the population is either choosing to cohabit or a small portion of the population is choosing not to cohabit. When the distribution is at the nadir (50% do and 50% don't) they would expect to see the least amount of difference in later martial stability than those who go straight to marriage without cohabitation.

In an attempt to control for other explanatory variables, they include a variety of factors known to be correlated to cohabitation. These covariates included birth cohort, parental divorce, and place of residence during childhood, age at the start of the union, educational attainment, activity status and parenthood. As the populations of countries approach equilibrium of those who have and have not cohabited prior to marriage the difference in marital stability outcomes decreases.

The authors caution that the findings explain only a part of what mechanisms may be a work in explaining the differences and point to other institutional factors that may be at work such as religion and legislative regulations. They conclude by emphasizing that the selection effect continues to operate across all scenarios. What they mean is that in cases where the proportion of cohabitants is small or large, those who are cohabiting and those who are not cohabiting continue to retain some

distinguishing factors such as strong religious beliefs. They conclude by redirecting the focus away from the effects of cohabitation on later marriage and say that those who study union formation need to ask the important question of what makes the marriages of people who reject unmarried cohabitation so stable." This question is deemed important by this project and discussed in the concluding section in further detail.

Chapter 5 : Research Question

Cohabitation as a union formation state has gained popularity both in practice and in the interest of social science researchers. This research project is focused on the continuing debate in the literature regarding the negative correlation of premarital cohabitation with later martial stability as well as the competing explanations for that instability – selection or experience. The research questions will flow from the two competing explanations for the negative relationship between premarital cohabitation and later marital stability with a focus on the selection effect.

5.1 Research Questions

Therefore the questions this project seeks to address will be based on the following:

- If the negative correlation between premarital cohabitation and later martial stability is the result of a selection effect in which people who practice cohabitation and then marry represent a group with certain qualities that make them more vulnerable to relationship instability, then as the social constraints that influence the selection process disappear, so should the relationship between premarital cohabitation and later marital instability.
- 2. If on the other hand the negative relationship between premarital cohabitation and later marital stability is the result of some aspect of the experience of the cohabitation state itself, then by conclusion it would be expected that marriage would be found to be a more stable environment

regardless of the adoption rate of the practice or the presence or absence of social constraints.

3. If the relationship between premarital cohabitation and later marital stability continues to exist after cohabitation becomes normative then the variables associated with higher marital instability or variables associated with lower marital instability will identify the mechanism at work supporting the cohabitation effect.

The research questions will be translated into testable hypotheses with the aid of the following guiding statements:

In order to test these three research questions, the following statements will act as guiding principles:

- As patterns of cohabitation change so do the characteristics of those who cohabit. Therefore when cohabitation is practiced by a minority of the population or when it is practiced by a majority of the population, the characteristics of those who cohabit and those who do not will be at their greatest.
- As cohabitation become more normative and the selection effects are reduced or eliminated then the negative relationship between pre-marital cohabitation and later marital stability should also be at its lowest or have disappeared.
- If a selection effect is at work creating differences between those who cohabit and those who don't, then as cohabitation becomes more normative

the explanatory selection variables should become more robust and the confounding variables become less robust.

• If the experience of cohabitation explains the increase in later marital instability, then cohabitation should be found to be a less stable union than marriage regardless of the normativeness of either.

• When cohabitation is practiced by only a few, cohabitation unions should be less stable.

• Whenever cohabitation rates are similar to those of marriage then cohabitation unions should be equally stable.

• When cohabitation is practiced by a majority of the population then marriage should prove to be less stable.

 By extension if marriage is a more stable form of union then former cohabitors (those who have transitioned to marriage) will show greater union stability compared to current cohabitors because their union history includes marriage.

5.2 General Hypotheses

Three hypotheses need to be tested in order to answer the above research concerns:

 Life course theory states that early life events will have an impact on later life outcomes (Elder, 1999). For much of the 20th century premarital cohabitation was not the normal pathway to marriage. Non-normativeness is expected to be socially sanctioned leading to a greater likelihood of negative outcomes. Therefore using the longitudinal data from the BHPS it is hypothesized that there will be an increased level of divorce for those marriage that were preceded by cohabitation.

- 2) Using the same BHPS data it is hypothesized that over time, cohabitation prior to marriage will go from being adopted by a small minority to a practice embraced by the majority of the population. As a result of this greater adoption there will be less social sanctions a diminishing cohabitation effect. In in addition to this general hypothesis, the data will also be used to test Liefbroer and Dourleijn's diffusion hypothesis that the negative effect of cohabitation on later marital stability will be greatest when only a few or when the majority of the population engage in the practice.
- 3) Finally, using the same data set once again, it is hypothesized that over time the most salient mechanisms accounting for the cohabitation effect will emerge as the overall effect diminishes and cohabitation becomes more normative. Several variable level hypotheses involving variables previously shown to be associated with a cohabitation effect are used to guide the testing of this hypothesis. These variable level hypotheses listed in Table 5-1.

Variable	Hypothesis	
Relationship	Former cohabitors will have higher odds of union dissolution than those	
Pathway	who go straight to marriage but these odds will decline from earlier waves	
	to later waves	
Age at First	Unions that take place early (before age 21) will be less stable than those	
Union	entered into after age 21. This pattern will be stable from earlier waves to	
	later waves.	

 Table 5-1 - Variable level hypotheses

Variable	Hypothesis
Dispersion	Union stability will increase as the percentage of the population choosing
	cohabitation as their first union approaches that of the straight to marriage
	group. Stability will increase from early to later waves.
Religion	Religion will be positively related to martial stability and will increase in
	strength across time from early to later waves.
Education	Education will be positively associated with marital stability but will
	diminish in strength from early to later waves.
Traditional	More traditional family values will be associated with greater marital
family views	stability and remain stable across waves.
Dependent	The presence of a dependent child under aged 16 and under will act as a
Child	deterrent to divorce and therefore be strongly related to union stability
	across waves.
Ethnicity	Ethnicities that embrace a more traditional view of marriage will be less
	associated with divorce. It is hypothesized that non-white groups will be
	more conservative and have greater union stability. Time will not affect
	this based on the assumption that new immigrants and ethnic enclaves
	will offset enculturation.
Region	Those born in rural areas will be assumed to have been raised in rural
	areas and as a result would have more stable relationships than urban
	and this relationship would be stable throughout waves.

5.3 Pathways /Sequences

The hypotheses testing will focus on the variables associated with explaining the cohabitation effect and how they are related to the relationship status of the participants, measured as either intact or not, across the life of the relationship. The pathways are reduced to two patterns. The first is those who are single and then go straight to marriage. The second includes those who are single, chose to cohabit and then eventually marry their cohabiting partner. Both pathways also include divorce where present.

5.4 Qualifications

Due to the complexity of life course histories and institutional interactions, this project will narrow its focus to just the union and fertilities histories of the selected sample. Variables known to influence cohabitation patterns will also be included in the final regression models. To further focus this project, only the female population will be included in the first two phases of the project. Finally this project will look at only first unions that went straight to marriage or a respondent's first cohabitation transitioned into marriage. This very specific focus will allow the pathways to be compared in their most basic form. Trost (2010) argues that researchers should not try to compare former cohabitors with married non-cohabitors because former cohabitants have experienced both marriage and cohabitation while the noncohabitors have only experienced marriage. The problem with that rationale is that it attempts to discount earlier life events on later life outcomes. Since cohabitation precedes the subsequent marriage, it may influence the outcome of that marriage just like any other life event such as education, child birth or parental divorce may be found to influence later life events. Trost's approach discounts selection and focuses exclusively on experience, yet provides no support for an experience only explanation of the cohabitation effect. The narrow focus of this research helps to eliminate other potential intervening factors such as multiple cohabitation, multiple marriage, comparing partial union lengths and unions that were formed later in life to name a few.

5.5 Social Process

In addressing the above stated research questions, this project builds on existing research that has identified support for the changing nature of cohabitation patterns (Beaujouan & Ní Bhrolcháin, 2011; Kiernan, 2001; Kneale et al., 2009), the reduction in cohabitation effect (de Vaus et al., 2005; Le Bourdais & Lapierre-Adamcyk, 2004; Schoen, 1992; Trovato & Budinski, 2005), the rise of cohabitation adoption across representative population samples (Matysiak, 2009; Moustgaard & Martikainen, 2009; Soons & Kalmijn, 2009) as well as the research that supports a visible cohabitation effect at the extremes of cohabitation adoption rates as well as data that supports the less stable nature of cohabitating relationship when compared to former cohabitors and married unions (Liefbroer & Dourleijn, 2006). It plans to build on this previous research by looking at one nationality across time as an example of the changing nature of union formation patterns over time and the consequences and details of those changes.

The use of longitudinal data from one nationality (Britain) will allow the proposed hypotheses to be tested, but also will allow the process of change to described and illustrated.
Chapter 6 : Data

6.1 Longitudinal Data

In order to measure life course pathways, longitudinal data needs to be used. Singer and Willett (2003) suggest that not all longitudinal studies are suited for analyzing change (development) but those that do, contain the following commonalities: Three or more waves of data are collected; a dependent variable that changes systematically over time; and a sensible metric for clocking time is used. Longitudinal data has become the golden standard of sociological research because of its incorporation of the process of change through the measurement of time. Incorporating measures of observable behaviour and unobservable tastes, values and attitudes over time allows the rejection of the tautological argument about which direction the influence is taking place. Does behaviour influence values or is it the other way around? Blossfeld (1996) states that the only type of data available that could help address this issue would be longitudinal data that collects rational expectations of individuals future behaviour. This is the best measure of an individual's assessment of the information they have to make decisions about future actions.

According to Rose (2001)

The main objective of national household panel surveys is to examine the experiences over a period of years of a representative sample of the population and, thereby, improve our scientific understanding of the incidence, pattern, duration, interrelation and impact of features of society such as those just enumerated. (p. 5)

He asks the question of why developed nations such as Australia, Canada, Germany, the United States, the European Union and others have committed so much of their scarce science dollars to household panel data. The explanation lies in the general consensus that we are living in a time of great social change. Citing his previous work, Rose, Vogler, Marshall, and Newby (1984) argue that national and international economic and social structures are impacting individuals at the micro level and this is the focus of household panel studies. Daily the media reports about the economic influence of nations abroad and the impact they are having on local economies. Currency issues are not contained by national borders. Social policies in one country do not go unnoticed in others. Closer to home, individuals, families and households are impacted by changing social norms and aging demographics. The deindustrialization of the economy impacts these same units in lost jobs and the deskilling of the labour force. Union formation patterns begin to adjust to extended education, female workforce participation, and delayed fertility. All these changes raise the awareness of the government and the need for changing social policy. It is these very issues that household panel surveys are designed to help us collectively address with greater precision.

Rose (2001) goes on to further state

This is the prime purpose of household panel studies: to provide both social scientists and policy-makers with prospective micro-data in order to improve our understanding of processes, causes and effects in relation to social trends and social change. These have always been among the best

purposes of social science. The social sciences emerged as a response to an era of genuine and very rapid social change and the consequent need for a greater comprehension of social, economic and political processes. Ever since, the most imaginative social science has sought to connect public issues and private troubles (Mills, 1959) and thus to explore macro-and micro-interconnections. For this reason, the scientific programmes of panel studies are often aimed at the study of family, household and individual change (and stability) within theoretical frameworks which place micro-level changes in a macro-level context... (p. 7)

Panel surveys are especially valuable in studying individual, family and household change because of their ability to track change over successive waves of information gathering periods. The longitudinal design of the panel study allows the researcher to not only identify percentages of the population occupying a particular state such as below the poverty line or in a marriage relationship, but it allows the observation of individuals transitioning in and out of those states. The comparison is made that longitudinal data gives us information regarding change at the individual or micro level where cross-sectional data informs about populations at one point in time. Households and families are different unit of measurements than the individual but the individual is a more stable unit to measure over time. Family and household composition is more likely to change over time as new members are brought in and

others depart. Panel data allows us to connect and follow certain relationship networks, but those relationships and networks will be composed of the individual level measures. Rose (2001) compares the analytic benefits of panel research to cross-sectional designs and concludes that panel data provides a better way to examine transition between states such as occupations or employment. The impact of social policy can be more easily evaluated because data before and after the introduction of new policy can be compared. Behavioral models can be estimated utilizing duration and frequency of transitions which also allows for better control of unobserved behavioural determinants.

Duncan and Kalton (1987) outline several types of survey designs; repeated, panel, rotating panel and split panel. They describe that the panel study is well suited for the purpose of estimating gross change and other components of individual change. Indefinite life panel surveys, a type of panel survey that takes a probability sample of the population at the time the panel begins and then takes subsequent measures of that same population over time. Attrition means this design is more suited for estimating gross change and aggregated individual data rather than following individuals. This project relies on the above mentioned approach. It is not uncommon for the infinite life panel survey to also have a retrospective component in which life history data is gathered over the first few waves. The benefit of this is that you are able to add a large amount of the life history of the respondents that lie beyond the time boundaries of the panel itself. The downside of this is that retrospective data is laden with measurement error specifically in detailed areas of life such as income in the past. The positive side of this concern is that this problem

is not as pronounced when dealing with important life events such as deaths, birth, weddings and divorces which are key events in this project.

Panel surveys provide a variety of benefits such as the ability to distinguish between static and fluid characteristics as illustrated by variables such as union status or employment status. In addition to the characteristics listed above, the panel survey data allows for estimating more sophisticated behavioural models and estimate of change of events under study (Duncan, 2001) in Rose (2001). Yet Panel data is not without its weaknesses. Duncan raises concerns about respondent attrition as it affects not only the loss of participants but also that it may lead to greater bias in the surviving respondents. Panel data may also contain more error than single time in point samples especially when retrospective data is considered. Finally, he raises concerns that participation in panels may affect the respondent's behaviour. This is a concern that Lambert (2006) also raises concerning the British Household Panel Survey, the data set used in this project. In order to minimize the potential weaknesses of panel data Duncan (2001) outlines five areas that need special attention:

> (i) Ensure that the initial sample is of the highest possible quality; (ii) use the proper rules about whom to follow and interview; (iii) minimise bias due to panel attrition; (iv) use feedback techniques during interviewing and check for crosswave inconsistencies to minimise errors in the measurement of change; and (v) whenever possible, gather continuous measures throughout the panel period. (p. 55)

This general overview of the benefits of Panel survey data provides the foundation and rational for it use in this project. With this projects focus on transitions and changes in the union patterns and pathways over the course of the 20th century and the potential impact of different pathways on later union stability, panel survey data is a good fit. This project will utilize the British Household Panel Survey because of its comprehensive collection of union history over an extensive period of time. This data set will be used for this project to better examine the changing patterns of union formation and the result of those changes on later union stability.

6.2 British Household Panel Survey

6.2.1 SN 5151 - British Household Panel Survey: waves 1-18, 1991-2009

The British Household Panel Survey is a nationally representative, government funded, panel survey of the UK which has gathered data continuously since 1991. The BHPS originally surveyed more than 5,000 households and produced a sample of approximately 10,000 individual data files. Re-interviews were conducted on an annual basis. If new households were created, then all the adult members of the new household would be interviewed. Children of the households would also be interviewed once they reached the age of 16 years. The survey began with a stratified random sample of the population that was later augmented with special focus groups including additional respondents from Wales and Scotland beginning in 1999 and then commencing in 2001, Northern Ireland was added. What began as a study of the British population is more accurately a United Kingdom study under its current configuration.

According to the official BHPS documentation (Taylor, 2010) eligibility into subsequent waves could occur in one of three ways: 1) A baby born to an Original Sample Member (OSM); 2) An OSM move in a household with one or more new people; 3) One or more people move in with an OSM. A further clarification of eligibility involved shared residence with an OSM as defined by shared living accommodations or sharing one meal a day with the residence being the main address. Continual residence for at least six months during the year is defined as the main criteria to meet for marginal cases. The sample for each wave was made up of the OSMs, their children and any Temporary Sample Members (TSMs).

The BHPS User Manual Volume A (Taylor, 2010) describes the survey process as:

The questionnaire package consists of:

1) A household coversheet, which contains an interviewer call record, observations on the type of accommodation and the final household outcomes. At Wave One, it contained a Kish selection grid for the selection of households at multihousehold addresses. The Kish grid utilizes a pre-assigned table of randomly generated numbers to select interview participants. Cover sheets are produced containing the last known address of sample members. Moves discovered by interviewers during fieldwork are dealt with by interviewers, either by discovering a forwarding address or by creating a movers form for return to the Research

Centre. Techniques for following movers are described in Section IV on Sampling and Survey Methods.

- 2) A household composition form which is administered, in most cases, at the interviewer's first contact with an adult member of the household. The interviewer gathers a complete listing of all household members together with some brief summary data of their sex, date of birth, marital and employment status and their relationship to the household reference person (HRP) defined as the person legally or financially responsible for the accommodation, or the elder of two people equally responsible. Additional checks are required on presence in the household of natural parents or spouse or partners, in order to unambiguously establish all relationships (for instance, secondary or `hidden' couples).
- A short household questionnaire administered with the household reference person and taking on average 10 minutes to complete. This contains questions about the accommodation and tenure and some household level measures of consumption.
- 4) The individual schedule takes approximately 40 minutes to complete and is administered with every adult member of the household (aged 16 or over). The individual questionnaire covers the following topics:
 - neighbourhood
 - individual demographics
 - residential mobility
 - health and caring
 - current employment and earnings

- employment changes over the past year
- lifetime childbirth, marital and relationship history (Wave Two only)
- employment status history (Wave Two only)
- values and opinions
- household finances and organization
- 5) A self-completion questionnaire, which takes about five minutes to complete. Questions included are subjective or attitudinal questions particularly vulnerable to the influence of other people's presence during completion, or potentially sensitive questions requiring additional privacy. The self-completion questionnaire contains a reduced version of the General Health Questionnaire (GHQ) which was originally developed as a screening instrument for psychiatric illness, but is often used as an indicator of subjective well-being. It also contains attitudinal items and questions on social support.
- 6) A proxy schedule is used to collect information about household members absent throughout the field period or too old or infirm to complete the interview themselves. It is administered to another member of the household, with preference shown for the spouse or adult child. The questionnaire is a much shortened version of the individual questionnaire, collecting some demographic, health, and employment details, as well as a summary income measure.
- 7) A telephone questionnaire, developed from the proxy schedule, for use by an experienced interviewer employed by the Centre. This is used when all other efforts to achieve a face-to face interview have failed (pp. 26-27).

The BHPS has three main variable components to it. Core components are themes covered at every wave. These are considered the heart of the survey. Examples of core components include both household questions and individual questions. The household component includes issues around home ownership and consumption patterns. The individual level questions gather typical demographic information including marital status changes, employment and personal finances details as well as health and value / opinion questions. The second category of components is referred to as rotating. These are topics that are covered periodically and are viewed as areas where large changes are not expected over time. Examples of rotating components include attitudes toward health issues, values and opinions regarding a wide variety of social issues such as social justice, the environment, religion and leisure activities. The final type of component to the questionnaires is the non-core or variable component. These are areas of interest that are only visited once and are usually questions that tap into an initial condition such as "What age you left school?" or "Where were you born?", for example. The survey attempted to fill in a person's life histories during the first three waves of the project. Information about work histories and union and fertility histories would be examples of this category.

Survey retention rates are a major concern after the initial sample has been identified and interviewed. The BHPS keeps detailed records of wave over wave retention rates as well as the retention rates of the initial participants. Uhrig (2008) produced a report on the nature and causes of attrition in the BHPS. He found that those who lived in gated communities or difficult to contact residences, those who

spent less time at home and those with a high likelihood of geographic mobility were most likely to be dropped from the study. Beneficial to this project is that married households tend to have better retention and response rates than single person households Lepkowski and Couper (2002). In fact, single, never married are less likely to agree to participate in a survey (Fitzgerald, Gottschalk, & Moffitt, 1998; Foster & Bushnell, 1994; Lillard & Panis, 1998; Nicoletti & Peracchi, 2002). Women are more likely than men to agree to participate in surveys and women are less likely to drop out over time of longitudinal studies although the difference may be attributed to other control variables such as education and child care responsibilities (Watson, 2003). Uhrig found that non-response rates in the BHPS are generally similar to other panel studies. The non-response was highest in the first waves before leveling off. He found that refusal rates were higher than non-response rates and that both have increased in recent waves.

6.2.2 British Household Panel Survey Consolidated Marital, Cohabitation and Fertility Histories, 1991-2009 UKDA study number: 5629

In addition to the general BHPS survey, this project relies on UK Data Archive Study Number 5629. The consolidated marital, cohabitation and fertilities histories facilitated the construction of discrete time state sequences of relationship histories across the life course of each of the participants. This longitudinal, panel, cohort file contains information gathered from 32,342 participants who responded at least once during the survey. The data set includes information gathered from January 1900 to 2009 and includes respondents from WAVES 1-18 of BHPS. Since these data were

compiled and synthesized from existing material, weighting and selection processes are identical to those of the larger data set.

The data set contains cross referenced personal identification numbers, sex , date of birth as well as a household number and region of residence from each wave. The regions represent Government Office Regions (GORs) in addition to further subdivision of some regions. Sources of fertility histories are based on information gathered from one of three waves (2, 11, and 12) or from the panel. Birthdates and birth order are recorded for each birth reported. The maximum number of children recorded for a person is 16 for 1 respondent. A variable called twin_ was used to indicate whether the birth involved a single or a multiple child birth. In the sample 14,888 respondents reported no children while 17,461 reported one child. Due to some couples being interviewed, there is some double counting of births. (Pronzato, 2007) reported the that 25% of sample had their first child at an average of 24.5 years and that 50% became parents for the first time just before their 30th birthday (29.75 years).

Most valuable to this project is the creation of union histories. A combination of the retrospective histories and panel data allow the creation of the number, timing, duration and sequencing of unions for each respondent. Two respondents had 10 unions and this represents the maximum number recorded. The variables created record the union number, the partners ID, when the union began, when it ended, how it ended, a separation date if applicable and finally a left censoring indicator if a start date is unknown. The union history data set also identifies the source of the information for both marital and cohabitation data. A summary of the union data

indicates that 20,690 of the total sample married at least once and 7,828 people from the sample experienced a cohabitating relationship. Appendix E details the process and coding used to transform the marital, cohabitation and fertility histories into life course union sequences.

6.2.2.1 The pros and cons of the BHPS

Consistent with the general benefits and potential pitfalls of longitudinal data set, Lambert (2006) prepared a summary of the positive and negative aspects of the BHPS. On the positive side he begins by stating that social scientists in the UK had never had previous access to panel data records of this magnitude before. Data of this quality facilitates the advancement of methods in considerable ways not possible before. The access to household level data is also a strong positive of the data set. Most longitudinal data analysis is done at the individual level. This data set provides opportunity to explore interaction among households as well as intergenerational connections. An often overlooked benefit of the data set is the youth surveys that began in Wave 4 and continue to interview household members between the age and 11 and 15. As subsequent waves are gathered, more and more of these children will also be filling out the full adult surveys providing a wealth of data that would connect youth aspirations, expectations and attitudes with actual later life outcomes.

The work history files are another example of the "pros" of the BHPS. The collection of data for periods between the panels helps to construct a comprehensive employment picture and pathway. This information can also be compared to other occupations in the household as well the occupations of the parents of the

respondents. There is even limited cross comparison data with friends. Although not discussed by Lambert, this data benefit can also be collected for union and fertility histories allowing the construction of detailed time varying relationship pathways. Detailed income measure across a wide variety of sources is another positive to this data set. The final positive that Lambert discusses is the subpopulation analyses. With the addition of new population segments, comparison can be made between England, Scotland, Wales and now Northern Ireland as well. Occupational subgroups could be compared as could populations who share similar life events or situations.

On the negative features of the BHPS, Lambert focuses on the flip side of the coin. With detailed and rich life course data comes complexity. The BHPS is no different. He alludes to the constant release of new data sets, the quirks of some of the variables and the complexity of integrating retrospective life histories with panel data resources as possibly being a deterrent to researchers. The issues of dropout and item non-response are also discussed. Although it has already been discussed that the BHPS does not differ greatly form other panel study an important point is raised concerning the issues of dropped cases because of missing data. This can be very important when cross wave records are matched. As a result of unbalanced models, the sample sizes may become too small to be of value. Interviewer effects and panel conditioning is a concern illustrated by the fact that most of the researchers, like other major studies, are individuals hired by market research firms and tend to fit a certain social profile. Lambert's own personal observation found one observer described the researchers as "polite and presentable, apparently

middle class, middle-aged women ..[suffused with]. Daily Mail/Telegraph can do conservatism" (Lambert, 2006) (p. 17). 'Panel conditioning' is a known reality with surveys. It is the situation created when both interviewer and respondents become increasingly familiar with the survey material and with each other to the point where the respondent can begin to organize and structure their lives around the survey material. The BHPS's convenience regional clustering design has received criticism (Davies & R., 1989). The criticism is that most of the respondents in the regional sample have shared similarities with one another and other variables which are regionally influenced. The final negative area that Lambert brings up is the complex clustering patterns that are part of the survey. Multiple panel records are nestled with individuals and individuals with households. The stratified structure of the design means that households are embedded in specific geographically clusters. The concern that comes from this problem is that some major areas of the country receive a disproportionate number of respondents and others are underrepresented.

The "pros" and "cons" concerning the data set are not inconsistent with the material presented earlier regarding the rational for using longitudinal data. The awareness of the weaknesses of the data serve as a reminder of the importance of not thinking that longitudinal data with its 'golden standard' nomenclature is going to save a poor design from producing poor results.

Chapter 7 : Research Design

7.1 Research Design

The analytic portion of this project will be in three phases. Each phase will build upon the other to address the research questions posed earlier.

- Is there evidence of a cohabitation effect? In other words does the data support a greater negative correlation of divorce for those who have cohabited prior to getting married compared to those who entered straight into marriage?
- 2) If there is an effect, does the pattern of effect change over time and as a result can the effect be explained by cohort differences?
- 3) If there is an effect and the pattern does vary over time, what constructs are explaining any continuing effect?

The research design is intended first show the recent historical trend of the adoption of cohabitation as a preferred first union state. Presentation of the dataset in a cross tabulation format will make this trend visible over the 20th century in Britain. Not only will the adoption trend be visible but also the correlation with first union formation choices and relationship stability will be presented. The second phase of the design will look at the patterns and sequencing of the sample's relationship histories. Life course theory discusses the importance of timing sequencing, duration and transitions between states. This project will use optimal matching analysis to visual present the importance of timing sequencing, duration

and transitions between states as well as the identification of latent clusters of relationship formation patterns. The final element of the research design will be a series of logistic regression models that will be used to test the diffusion theory as it is refined by (Liefbroer & Dourleijn, 2006) in their study of European differences in the adoption of cohabitation and that adoption rate on later relationship stability as well as identifying explanatory variables that change over time.

7.2 Research Model

The research design is based off the model illustrated in Figure 7.1. The model is based on a combination of life course events and life course pathways. All pathways begin in the same state (single) and trace the trajectories through the respondent's first union formation states of marriage or cohabitation. If cohabitation is followed by marriage, then that relationship state is tracked as well. All pathways lead to the same dependent variable relationship outcome as conceptualized by whether the union is intact or not. Of primary interest are the differences between pathways #2 -> #4 and #1 -> #3 -> #5. Interest in pathway #1 -> #6 is for comparative purposes only. As previously described these pathways will be examined from three different perspectives. The first will utilize cross tabulations in order to provide a general comparative overview as well as the general relationships between the pathways and the outcome status. The second will be through the use of sequence analysis where the pathways can be examined with more detail. The sequence approach will allow the patterns of change to be identified before the third perspective uses logistic regression to look at the mechanism at work that create the diverging relationship outcomes.





7.3 Cross Tabulation / Contingency Tables

Bivariate analysis is uniquely suited for the analysis of two nominal level variables. In this project the outcome of whether a relationship is intact or not is a simple binominal outcome variable. The pathways described are also nominal level variables. There are three pathways to be compared with the addition of the comparison pathway of individuals who just cohabited and a fourth when former cohabitor's relationships are bifurcated into total union length (cohabitation plus marriage) and union in which the resultant marriage is just considered.

7.4 Optimal Matching Analysis

The use of sequence analysis is a unique contribution of this project. As a result of its limited uses thus far in family research, it is important to spend a detailed amount explaining its use in this project. Aisenbrey and Fasang (2010) provide a summary of life course research and appropriate methodologies. In that summary they encourages a combination of holistic sequence analysis and event history analysis in order to better understand the unfolding process at work in the lives of cohabiters who later go on to marriage. This project utilizes logistic regression in a similar form to discrete time event history analysis. Thornton et al. (2007) do an extensive exploration of background variables that are associated with union formation patterns included several intergenerational variables but they do not examine the full pathways either before or after the initial cohabitation. Standard regression techniques are well suited for structure questions but cannot adequately address process issues (Allison, 1984). Union life course trajectories will be created for multiple cohorts in order to uncover the latent trajectory clusters of the participant's life course. A methodologically manageable number of clusters will be used to test the importance of life course patterns and their resultant outcomes. Several ecological levels of influencing factors will also be measured. As several researchers (Blossfeld, 1996; Lesthaeghe & Moors, 2002) have commented, the dualism between macro and micro sociological factors or structure and agency does not have to take place. The question is not which is more important but how they work together.

7.4.1 Sequence analysis through optimal matching

Once the challenge of data collection is met, the task is to analyze it in a meaningful way. Singer and Willett (2003) catalogue numerous developed and developing methodologies that could be applied. They reference standard OLS techniques, multilevel models, discrete time-event and hazard models as well as continuous time models. Using sequence data aids in the analysis of change over time. Pollock (2006) and Aisenbrey and Fasang (2010) see sequence analysis as complimenting more widely used methods such as event history and survival analysis. Although event history and survival analysis approaches make steps forward in this regard, sequence analysis is distinct in that the positions in a sequence refer to a relative, not an absolute, time point. This proves very beneficial when considering the conception of time takes on a variety of definitions and metrics in the study relationship formations. Cohorts and individuals can be studied together even though they do not share the same chronological time. Traditional approaches to longitudinal data analysis tend to focus on single events as opposed to the sequence of events, order of events and duration in the states between those events.

Recent advances in sequence analysis have addressed some of the critiques it has received, such as the link between theory and transformation costs, approaches to validity, how to deal with missing data, and representation of order and timing of states within sequences (Aisenbrey & Fasang, 2010). Aisenbrey et al. feel that the second wave of sequence analysis makes it even more of a suitable complimentary approach to event history analysis. They state the primary

advantage of sequence analysis is its ability to study trajectories. In addition they write,

New developments in sequence analysis foster conceptual as well as empirical precision in the analysis of life course patterns. Methodologically, sequence analysis provides the possibility to approach data without any distributional assumptions, and its exploratory potential is particularly well suited to analyzing nonstandard and "outlier" life courses. Given the focus on single transitions with event history methods, we argued that sequence analysis can play a fundamental role in bringing the much neglected trajectory concept, the actual "course," back into the life course. (p. 450)

They see sequence analysis as a tool to operationalize the diversity in life course trajectories. Applied to the aggregate level of analysis, they see it as a way to measure "de-standardization" or the increasing heterogeneity between life courses. It also provides a means of studying "differentiation" or the variation within an individual's life course. Optimal Matching (or OM), a form of sequence analysis, provides a methodology for establishing normative patterns of the timing as well as frequency of events. Particularly valuable for cross institutional interaction, is a variation of OMA called Multiple Sequence Analysis (or MSA). MSA allows trajectories of multiple institutions to be coded in a way that allows heterogeneous

pathways to be examined in a meaningful collective manner. Pollock's work on the trajectories of employment, housing and family careers illustrates the usefulness of this approach (Pollock, 2006). He uses the techniques to study the combined trajectories of employment, housing, marriage and child data from over 5000 cases from the British Household Panel Survey.

OMA and MSA provide a method that assists in meeting the theoretical importance of studying careers and pathways as a means of better understanding the context in which a researched phenomenon occurs. It allows the researcher to move past static time point measures and get a better understanding of where individuals and couples have been and where they may be expect to go. With OMA the distance matrix values are calculated across all the sequences and then through the process of cluster analysis the selection of dominant themes can be assessed. These dominant themes provide opportunity for a variety of descriptive and regression statistics that aid in the determination of modal patterns. By providing some advantages over traditional longitudinal data analysis, especially in regard to holistic analysis of longitudinal data. It provides an additional tool to the researcher who is interested in better understanding union formation interaction and development over time.

7.4.2 OMA illustrated

The following is a simplified example of sequence analysis using optimal matching as employed in the statistical software package called STATA. This example will look at the possibilities of studying timing and sequencing issues

regarding the formation of relationships. It uses artificial data of 500 university graduates' relationship status during the first 10 years after graduation. It assumes it is a representative sample of the population gathered retrospectively with no censoring. Each respondent gave dates to the closest two months of each change in status so there are 60 elements or time points that could be represented by six different states. The examples given are used with permission and adapted from the Stata journal article written by (Brzinsky-Fay, Kohler, & Luniak, 2006). Outlining the use of their user written macro developed for OMA, Brzinsky-Fay et al. (2006) present a simulated illustration that comes from 500 graduates over a period of up to 36 months after leaving high school. Their artificial data set simulated a panel data set.

OMA consists of 5 basic steps: 1.Define states; 2.Define substitution and indel costs; 3.Pairwise comparison of sequences; 4.Create matrix with minimal pairwise distances; 5.Cluster analysis to group sequences using distance matrix.

7.4.2.1 Define states and describe data

A *state* refers to a qualitative unit that is part of a set of possible units. The states represent a finite universe of discrete relational statuses.

1. Single

- 2. Non-cohabiting relationship
- 3. Cohabitation
- 4. Married

- 5. Separated/divorced
- 6. Widowed

Each recorded state is an *element*, while a *sequence* is an ordered list of elements. *Spells or episodes* represent a sequence of elements containing the same element value. Table 7-1 shows the *positions* 1–10 of the respondent with id 43. The sequence starts with the *element* 3 (i.e., cohabitation), changes to non-cohabitation, and ends with marriage at the 10th position.

 Table 7-1 - Sequence for individual 43

	st 1	st 2	st 3	st 4	st 5	st 6	st 7	st 8	st 9	st 10
43.	3	3	3	2	2	2	2	2	4	4

A user (Brzinsky-Fay et al., 2006) written macro has been developed for the statistical software package STATA that assists in applying this methodological approach. By highlighting some of the commands available for doing OMA on sequence data, the value of this methodology should make itself clear. (See P. Martin et al. (2008) for a more detailed discussion of OMA and Life Course Research). Appendix B presents similar results for this project.

The sequence data listed here is in the wide form and will need to be reshaped into the long form before the sequence analysis can be done. STATA handles this easily with the reshape command. A number of options are available to deal with sequences of different length as well as missing elements at the beginning or end of the sequence but in our example all sequences are the same length. Table

7-2 presents a first description of the distribution of sequences.

Total	500	100.00	
Sequence Pattern	Freq.	Percent	Cumulative
(Sequences shortened to 30			Percent.
episodes)			
222222222222222222222222222222222222222	38	7.6	7.60
33333333333333333333333333333333333	28	5.6	13.20
111111111111111111111111111111111111111	18	3.6	16.80
111111111113333333333333333333333	10	2.00	18.80
11111122222222233333333333333333	9	1.8	20.60
111222223333333333344444444444	7	1.4	22.00
1122222244444444444444445555555	5	1.00	23.00
111111133333333444444444555555	5	1.00	24.00
1122334444444466666666666666666666666666	4	.80	24.80
(Output Omitted)			
11333311122224444444444444444444444	1	.20	99.80
11112222333344445555222333333333	1	.20	100.00

 Table 7-2 - Distribution of sequences

This output shows that the most frequent sequence is someone who is in a non-cohabiting relationship for the duration of the study period. The majority of sequences are observed only once and are therefore unique patterns. The SQ-Ados

macro also lets you sort the sequences by similarity of having the same order of elements or just consisting of the same elements or states. This function lets the researcher look for certain patterns, combinations or state transitions that may be of significance to the research design, such as the number of transitions, the length of spells and the combinations of various state transitions.

Another important descriptive function of the macro is the ability to get a sense of the concentration of sequences as shown below in Table 7-3. This would be of value in determining a density of sequences or the concentration of sequences around a modal pattern.

	Sequences	% of Observed	Cum.
1	309	61.8	61.8
2	22	4.4	66.2
3	5	1	67.2
4	3	.6	67.8
5	2	.4	68.2
7	1	.2	68.4
9	1	.2	68.6
10	1	.2	68.8
18	1	.2	69
28	1	.2	69.2
38	1	.2	69.4
Total	347	69.4	

Table 7-3 - Sec	quence concentration
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With 500 sequences, six different sates or elements and 60 time positions, the potential number of sequences is 6^{60} . Among the 500 sequences we observed, there were 347 different sequences and a 69.4% concentration of sequences (347/500). We also see from the output that 309 of the 347 sequences observed are unique which represents 61.8% of the observed sequences.

Further detailed descriptives are available through software commands such as the possibility to determine the number of different elements in each sequence, the number of episodes, the length of each sequence and the number and length of any gaps present in the sequence. Table 7-4 presents the relevant output for these descriptive for our example data.

Variable	Obs	Mean	Std. Dev.	Min	Max
length	500	60	0	60	60
length1	500	7.44	11.14481	0	59
elemnum	500	2.244	.8329776	1	6
epinum	500	3.122	1.843343	1	12

Table 7-4 - Seq	uence de	escriptives
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Here we see that first since all of our sequences were the same length, 60 elements, that the min and max observed is the same. Next we see that some of the sequences contain the 1st state (single) and that there is a least one sequence that had 59 positions occupied by this element. Next we see that a least one sequence had one element but at least one sequence also had all 6 elements present. The last

generated variable shows that the number of episodes is even higher than the number of elements indicated frequent moves between the states.

Number of	Freq.	Percent	Cum.
different elements			
in sequence			
1	88	17.6	17.6
2	238	47.6	65.20
3	141	28.2	93.4
4	30	6	99.4
5	2	.40	99.8
6	1	.2	100
Total	500	100	

 Table 7-5 - Distribution of number of elements in sequences

Table 7-5 provides a further delineation of the sequence structure. Only one sequence contains all 6 elements and 238 sequences contain only 2 of the elements. Further descriptives can allow categorical variables to be examined for similarity such as gender or regions.

A second descriptive method is sequence index plots. These are color coded graphs with time points on the x axis and number of sequences on the y axis. Each sequence is drawn out with each element represented by a different color. Figure 7.2 gives an example of a sequence index plot.

Figure 7.2 - Sequence index plot



7.4.2.2 Define substitution and indel costs

OMA compares sequences to one another to find typical patterns and similarities. The alignment of sequences is determined by two factors: 1) the number of substitutions made in addition to the number of insertions and deletions (indels) required to align the sequences with equal states by element and 2) the costs assigned to substitutions and indels. An illustration of this process occurs later in the paper under the pairwise comparison section but to acquaint the reader with the process, a brief summary is presented. A substitution takes place when one element is transformed from one state to be equal with the state in the comparison sequence. An insertion would occur when a gap is inserted between two elements in one sequence as a means of providing room to insert a new element whose state would correspond to the same element in the compared sequence. A deletion would involve the removal of an element in one sequence to allow the other elements to shift left as a means of aligning the states between the sequences. Insertions and deletions always occur in pairs. Since there are multiple combinations of substitutions and indels that could be used to align two sequences, the costs

assigned to these actions are important. The assignment of these costs is the subject of debate. Some researchers feel that there is no theoretical ground to set different substitution costs across states. More commonly, researchers use a cost structure that reflects the relative or presumed similarity among states. Some researchers set these costs based on actual transition probability between states, with less frequent transitions being assigned higher costs than less frequent transitions (Rohwer & Pötter, 2005). This is similar to the strategy used to set the costs for this study.

In this hypothetical example of relationship trajectories substitution costs are assigned based on the theoretical assumptions of each states similarity and probability of occurring with respect to other relationship statuses. The greater the probability of a transition from one state to another, the lower the substitution cost assigned. The first column of the substitution matrix shows the state of single most likely to transition into a *non-cohabiting* relationship, followed by *cohabitating* and married. Since it is impossible to transition from single to separated, divorced or widowed, these values were set at 2. With half of all new relationships involving cohabitation the transition costs from single to cohabitation or single to marriage were set to the same values. The substitution matrix (Table 7-6) takes on extra significance in our study because our sequences were all the same length, 60 elements. At least one author (Lesnard, 2006), points out that when sequence lengths are identical, the use of indels are not necessary and the substitution matrix will be exclusively accessed. There is no need for insertions or deletions as a result of equal length sequences since there would be no need to insert gaps or delete

elements when substitution costs could be set to accepted values. As a result of using only substitutions and not invoking indels, we are defaulting to the Hamming distance measure of between sequence measures rather than the more refined Levenshtein distances that take into account both substation and indel costs in determining the distance scores between sequences. See Lesnard (2006) for a more detailed description of the differences in these measures.

		non-				
	single	cohab	cohab	marriage	sep/div	widow
single	0					
non-cohab	0.5	0				
cohab	1.5	1	0			
marriage	1.5	1	1	0		
sep/div	2	2	2	0.5	0	
widow	2	2	2	1.75	1.75	0

 Table 7-6 - Substitution matrix

Two other key factors arise in determining substitution costs based on the nature of the sequences themselves. The first issue has to do with the length of the compared sequence. The greater the difference in sequence length, the more the distance values between the sequences will be influenced since increased insertions and deletions would be required. Standardizing of distance measures can be achieved by dividing the gross distance score by the length of either the sequence with the longer distance or the longest sequence in the dataset (Brzinsky-Fay et al.,

2006). The second issue affecting the determination of substitution costs pertains to time. Sequences represent measurement across time. In order to accurately compare one sequence to another, they should share the same calendar. Recent developments in OMA have focused on how to adjust substitution values for time warping caused by non-concurrent calendars (Lesnard, 2006).

7.4.2.3 Pairwise comparison of sequences

OMA provides a variety of ways to compare sequences and determine distance values. A reference sequence representing an ideal or modal pattern may be the most straightforward approach but it does not produce the detailed data that a pairwise comparison of all sequences does. Cluster analysis is only possible with a full pairwise comparison of each sequence. Once the substitution matrix costs are set, the use of a dynamic algorithm allows the sequences to be compared to each other to arrive at the minimum cost to transform one sequence into another. In the example included, the relationship sequence of individual 1 is compared to individual 2 and individual 3. By applying the substitution cost values from the matrix to the transitions necessary to equate the two sequences, a distance measure is created. In the first example, element 1 and 2 for both individuals are the same so there is no substitution cost incurred. Element 3 requires a transition of individual 2 from noncohabitation to single, a value of 0.5. This process continues for each element of each sequence. The division of the total distance score by the number of elements standardizes the score and is of particular value when different length sequences are being compared.

The simple example presented in Table 7-7 illustrates that sequence 1 and sequence 2 are closer together in similarity than sequence 1 and sequence 3. This illustration is simplified in that it is looking at a small segment of a larger sequence, the sequence lengths are the same so only substitutions are invoked and not indels. The calendars are concurrent for all the sequences and finally there is no adjustment in the substitution values for length of spells before or after a transition.

Table 7-7 -	Example
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Individual 1	Single	Single	Non-	Non-	cohab	cohab	married
			cohab	cohab			
Individual 2	single	single	single	Non-	Non-	Non-	married
				cohab	cohab	cohab	
	0	0	.5	0	1	1	0
							1

= 2	2.5
-----	-----

Individual 1	Single	Single	Non-	Non-	cohab	cohab	married
			cohab	cohab			
Individual 3	single	cohab	cohab	single	single	cohab	cohab
	_					-	-
	0	1.5	1	.5	1.5	0	1
= 5.5							

7.4.2.4 Create matrix with minimal pairwise distances;

The dissimilarity matrix is created from the pairwise distances calculated by the dynamic algorithm in the sequence comparison step. Each sequence's minimal distance value will be listed in this matrix with a corresponding value to every other sequence. The dissimilarity matrix has values for each unique sequence. The user written macro that allowed the different dimensional dissimilarity matrix to be merged with the existing sequence data is used. Though different algorithms will produce different distance costs, this example uses the Needleman-Wuncsh algorithm. It has been used in several studies and has been incorporated in the user ado Stata macro, illustrated here, that performs OMA (Brzinsky-Fay et al., 2006).

7.4.2.5 Cluster analysis to group sequences using distance matrix

The next step in OMA is the creation of clusters. Cluster analysis, the most widely used follow up analytic strategy, is applied to the distance matrix sequence values through Ward's linkage to create groupings of sequences. The sequences are grouped according to the dissimilarity measures that were merged with the original data. In the dendogram produced, sequences that shared the exact pattern of elements were grouped together first then sequences with similar measures were represented by close proximity branches on the dendogram. With the simulated large data set, it would make intuitive sense to chose to select a dissimilarity measure that produced a manageable number of theoretically meaningful clusters. With much of the recent research on the impact of cohabitation it was important to understand that both relationship pathways incorporating cohabitation and relationship pathways in general are not homogenous.

7.4.3 Distinctives & value

Taking a larger diverse and complicated set of life course pathways and reducing them to a meaningful set of grouped trajectories is what sequence analysis is well suited for. Stovel and Bolan (2004) see the identification of patterns of social process as an important precursor to focusing on which mechanisms are at work in

the process under study. Aisenbrey and Fasang (2010) summarize four key complimentary contributions that sequence analysis makes in harmony with event history analysis:

it provides a methodological implementation of the theoretically emphasized trajectory concept; it enables precise measurement of the central process of de-standardization and differentiation of life course patterns; it is not based on any assumptions about the process that generate the data; it provides a comprehensive perspective that is informative on subgroups of the population that do not experience predefined transitions. (p. 423)

7.5 Logistic Regression

The final area of analysis of data for this project will involve logistic regression. Logistic regression is well suited to deal with binary outcome variables. In particular it valuable in describing and testing hypotheses that involve the relationship between a categorical dependent variable and independent variables that can be either categorical or continuous (Peng, Lee, & Ingersoll, 2002). Acock (2008) provides the example of a married couple divorcing to illustrated one possible use of logistic regression in his introduction to STATA. Figure 7.3 shows the graph of a dichotomous variable and the resulting S curve or sigmoidal shaped curve which is difficult to describe with a linear equation. This is because the extremes do not follow a linear trend and the errors do not fit a normal distribution nor are the constant across the data range (Peng, Manz, & Keck, 2001).



Figure 7.3 - A binomial distribution

Before the widespread introduction of logistic regression in the late 1960s and early 70s, ordinary least square regression was used to estimate models with binary outcomes. The problem with this approach is that binary data does not typically conform to the assumptions of linear relations. Logistic regression addresses these problems because according to Haan (2008):

- Independent variables do not have to be linear related to the dependent variable
- Neither the dependent variable nor the error terms need to be normally distributed (the dependent variable does need to resemble one of the other distributions)
- Logistic regression does not assume homogeneity in variance across level of the independent variable.
When estimating a model with a binary dependent variable, the obstacles of working with a non-linear relationship can be overcome if the data values are transformed into logit values or the natural logarithm of an odds ratio. The odds ratio is the ratio between the odds of an event happening over the odds of an event not happening. Since the distribution of the odds ratio is not normal, the transformation of the odds ratio becomes important in interpreting the data. Since an odds ratio of 1.00 indicated equal probability of an event occurring or not occurring, an odds ratio of less than 1.00 would indicate an event is less likely to occur than its comparison category and an odds ratio above 1 would indicate that an event was more likely to occur than its comparison category. The problem with this is that the downside of an event being less likely to occur is limited by zero but an event more likely to occur has not upper bounded limit thus creating an abnormal distribution. By taking the natural log of the odds ratio, this problem is alleviated and the distribution becomes normal and linear.

This project uses the union state of whether a marriage / union is intact or not as the dependent variable. Logistic regression has been used to study the cohabitation effect in the past ((Brown, Bulanda, & Lee, 2012; Dush et al., 2003; Teachman & Polonko, 1990; J. M. White, 1987) and it provides a solid statistical approach to study the discrete time , discrete event data. As a result this, the final phase of the data analysis of this project will use logistic regression.

7.5.1 Dependent variable

Existing studies regarding non-marital cohabitation's effect on later marital outcomes tend to focus on two measures: 1) marital stability, measured as intact or

not, or 2) marital quality based on self-reported subjective measures of usually one member of the dyad. This study will use just the first outcome as the dependent variable. The subjective nature of marital quality measured by just one member of the dyad is problematic and beyond the scope of this project. Marital stability will be used as dependent measure with the comparative measure of cohabitation stability being used in the case of non-marital cohabitation relationships. To be consistent with a desire to be as statistically conservative as possible, unions classified by separation are not included in the divorce category. The normal practice would be to do so but since the majority of marital separations end relatively quickly in reconciliation or divorce (Amato, 2010), the status of separation is not included as a separate indicator. If the separation ends in reconciliation quickly then the marriage remains intact, if the separation ends in divorce then the marriage is no longer intact. The simple bivariate categories of intact or dissolved provide the best clarity for understanding the effect of premarital cohabitation on later marital stability.

7.5.2 Independent variables

The extensive research done on cohabitation has produced a variety of models which have identified variables associated with the cohabitation effect. Two such examples are the works of Stanley et al. (2006) and Thornton et al. (2007). These two studies provide direction for the variables assembled to study for this project. The first group of researchers focused on the conscious awareness in which couples entered cohabiting unions using the concept of sliding or deciding to describe their perspective. The second group of authors concentrated their research

on the intergenerational influences on whether a person was more likely to cohabit or not.

Stanley et al. (2006) divide the major findings related to the cohabitation effect into six broad categories; background which includes family history, religiosity, ethnicity and relationship patterns; general beliefs, primarily surrounding the perceived positive and negative aspects of cohabitation; relationship quality defined as the reduced functioning and greater likelihood of domestic aggression in later marriage; divorce; personal vulnerabilities such as higher levels of depression and lower levels of self-esteem in cohabitors and finally commitment which shows that cohabitors who plan to marry have higher relationship quality than those who do not.

Thornton, Axinn and Xie (2007)

- 1. Parental Factors during Childhood and Adolescence
 - a. Influences of Parental Youth Factors before Birth of Study Child
 - i. Family immigration
 - ii. Farm background
 - iii. Parental SES [socio-economic status] at time of birth—1962
 - iv. Maternal marital experience
 - v. Parental childbearing
 - vi. Grandmother's religiosity
 - vii. Maternal religious affiliation and participation
 - viii. Family closeness and sex role attitudes
 - Influence of Parental Factors during Childhood and Adolescence of the Child

- i. Updated parental information from 1962–1977
- 2. Parental and Child Factors during the Children's Young Adulthood
 - a. Courtship Process and Union Formation
 - i. Age at first date, age at first steady, age at first intercourse
 - b. Religious Affiliation and Commitment
 - i. Maternal and paternal religious attendance—1962/1977
 - ii. Maternal religious attendance/ belief/ importance—1980
 - iii. Child's religious attendance/ belief/ importance-1980
 - c. The Influence of Attitudes, Values and Beliefs
 - i. Mother's attitude toward premarital sex/ cohabitation
 - ii. Mother's preferred age at marriage and family size for child
 - iii. Mother's educational expectations for child
 - iv. Child's attitude toward premarital sex/ cohabitation/ being single/ abortion/ toward career & sex roles
 - v. Child's preferred age at marriage and family size
 - vi. Child's educational expectations
 - d. Educational Influences
 - i. Educational expectations
 - ii. School grades, enjoyment, years accumulated
 - e. Work, Earnings Potential, and Career Aspiration
 - i. Recent work and earning history
 - ii. Current work history and earnings
 - iii. Near future work and earning history

- iv. Past earnings
- v. Lifetime earning

These broad categories provide guidance in determining the appropriate independent variables for this project. The limiting factors to including all the constructs are a) the availability of the data; b) a desire for parsimony. As a result of these guiding principles the following variables have been selected to include in the logistic regression model:

- Religion
- Education
- Dispersion (percent of the population choosing cohabitation as first union)
- Ethnicity
- Age at first union
- Region of birth
- Care of a dependent child
- Traditional family views

Each of these areas of influence will be operationalized and tested as to their correlation to later marital instability as well as the changing nature across time of that influence if present. Variable construction is presented in further detail in the logistic regression section of Chapter 8.

Chapter 8 : Results

Three hypotheses will be used in order to test for the presence of a cohabitation effect and the changing nature of that effect. The first hypothesis is foundational to the second and third hypotheses. The research will focus on first unions only in order to have as similar a life course as possible. In other words the cases involve only those who have gone straight to their first marriage or whose first cohabitation has transitioned into their first marriage or those who only cohabited once. The impact of serial cohabitation has been well documented (Lichter & Qian, 2008; Lichter, Turner, & Sassler, 2010). This approach simplifies the cross life course comparisons and attempts to address some of the criticism directed at trying to compare the outcomes of former cohabitors with those who have never cohabited (Trost, 2010). If the data do not demonstrate a pattern in which those who cohabited only once prior to marrying their partner having an increased likelihood of divorce over the course of the union when compared to those who go straight to marriage, then there would be no support for the cohabitation effect and no need to explore the second and third hypothesis.

8.1 Hypothesis Focus

The rise of cohabitation as a socially accepted union began in the 1960s in many westernized countries including Northern Europe (Kiernan, 2002), Australia (de Vaus et al., 2005), Canada (Le Bourdais & Lapierre-Adamcyk, 2004) and the United States (Thornton et al., 2007) as a result of a series of macro institutional factors. These factors include the post-World War II population boom, the increased

number of women in post-secondary school education, the subsequent rise of women in the paid work force, the availability of female controlled reliable birth control, delayed marriage and decreased fertility. In addition the secularization of society and the weakening influence of religion in society have also been noted. This perfect storm of social influence is what researchers use to describe why, suddenly in the second half of the 20th century, union formation patterns that were slowly changing, changed course so quickly and so clearly. A longitudinal examination of the twentieth century union formation patterns from Great Britain provides a clear illustration of timing and magnitude of the change. Using union formation histories from birth cohorts representing the entire century the union formation patterns of Great Britain emerge. This data set provides an excellent opportunity to examine the presence or absence of a cohabitation effect as well as any change with almost a century of life course data.

8.2 Hypothesis One - Testing for a Cohabitation Effect

Life course theory states that early life events will have an impact on later life outcomes (Elder, 1999). For much of the 20th century premarital cohabitation was not the normal pathway to marriage. Non-normativeness is expected to be socially sanctioned leading to a greater likelihood of negative outcomes. Therefore it is expected that there will be an increased level of divorce for those marriage that were preceded by cohabitation.

The initial data set included both the male and female population. The first two hypotheses used only the female sample. This was done for two reasons. The first was for the purposes of examining only the unique pathways in the data. By

looking at just the female population, the potential of double counting relationships that may be represented by both members in the survey was removed. The second reason to explore just the female population initially was for the purposes of the sequence analysis section represented by hypothesis two. The smaller data set reduced the computational time to a useable length. In order to explore the gendered nature of union formation pattern differences, later analysis returned the male population back for the logistic regression portion of the study. The data set begins with an N=32,342. After screening for irregularities the final data set came to N=31,846 or 98.5% of the original set. There were 15,143 males and 16,703 females. Union status data allowed the construction of union histories including date of union formation, date of union dissolving and the reason for the union dissolving.

The data were tabulated to look at the frequency of three different union formation patterns; direct to marriage, cohabitation prior to marriage and cohabitation without marriage. A comparison group is also included that looks at the unions of those who cohabited prior to marriage as one continuous state. This group helps to see the effects of cohabitation on later marital stability with the length of the union being determined from the beginning of the cohabiting union rather than just the marriage duration following the cohabitation. The duration of the unions were used to measure dissolution rates at four different time points in addition to a lifetime calculation. Frequency of divorce was calculated at 5, 10, 15 and 20 years (see Appendix A). The full table allows an overview of cohort patterns across each union pathway and time point intervals as well as to compare across union pathways for each interval as well as at the aggregate level. Figure 8.1 provides an overview of

the distinct patterns about how each union formation pathway correlates to union stability.



Figure 8.1 - Union stability

The straight to marriage group emerges as the union formation pattern that is correlated with the lowest rate of dissolution at each of the time points and as a result the aggregate level as well. Fewer than 16% of the 8152 first marriages without prior cohabitation in the data set ended in divorce. This is compared to 24.7% of those cohabited prior to their first marriage and 26.1% of cohabiting relationships that dissolved during the same period. For unions that ended in divorce or dissolved prior to the 5 year mark the data show that only 2.9% of

marriages ended in divorce before five years compared to 7% of those who cohabited first. The group in which the total union length was observed (cohabitation + marriage) had 3.1% of marriages end in divorce. The least stable of all were those who only cohabited with 21.25% of unions dissolving before five years.

In Great Britain, the average length of marriage currently sits at approximately 11 years (Beaujouan & Ní Bhrolcháin, 2011) so the ten and fifteen year time points become of more interest. The pattern continues at 10 years with 6.9% of marriages ending before ten years compared to 15.27% for those who cohabited first. This was the case even after taking the total union length (cohabitation + marriage) into consideration. The comparison group still had divorce rates at almost twice the level of those who went straight to marriage (12.49%). Cohabitors who did not marry saw their unions dissolve at a rate of 24.93% by the ten year mark. By fifteen years the differences remain similar. Marriages 9.87%, cohabitation then marriage 19.84%, cohabitation plus marriage 18.49% and cohabitors without marriage at 25.76% the data reveals that only 5 of the original 3502 currently cohabiting relationships lasted longer than 15 years. Between 15 and 20 years both calculations of former cohabitors converge in the low to mid 20% range with order remaining the same. The straight to marriage group remains distinct with a divorce rate of 12.29% before their 20th anniversary.

The data collected from the 15 cohort structures allows a more detailed look at the trend of union formation choices and resultant union stability (Figure 8.2). While looking at individual cohorts across the same four time points, odds ratios of divorce for those who went straight to marriage and those who cohabited first were

calculated for each of the first 14 of 15 cohorts. The pattern is stable until the end of the Second World War. In a very small cohort comparison the first 15 years of the century showed an odds ratio increase 10.61:1 in the likelihood of divorce for those who cohabited first. The odds ratio drops to 3.91 for the next 15 year period. By the early 30s the odds ratio was 5.16:1 dropping to 3.61:1 in the period just before the War. During the War the odds ratio remained above 3 at 3.15:1 but then dropped over the next 10 years to 1.39:1 and 1.98:1 respectively. This decrease may be a result of war marriages that ended quickly and easing divorce laws instituted twenty years later. The second half of the century saw the beginning of a decrease in the odds ratio as it hovered around 2:1 for 25 years. This number is in line with the overall numbers presented across the 3 union pathway types. Cohort 12 and 13 representing the birth cohorts of 1975-1984 both demonstrate an odds ratio indicating a reduced likelihood of divorce for couples who cohabit prior to marriage 0.54:1 and 0.62:1. Both cohorts contain adequate sample sizes. For cohort 12 there were 205 straight to marriage couples and 194 cohabiting first couples. Those numbers were 76 and 90 for the birth cohort born in the first half of the 1980s. It should be noted that these two cohorts would have ranged in age of 25-34 and as a result may include individuals who have not yet been exposed to the risk of marriage or divorce.

Support for hypothesis one is strong. The fact that divorce is more likely across all time periods for those who cohabited prior to marriage is clearly demonstrated with the exception of the two most recent cohorts which contain younger populations. The comparison group that looked at the combined length of

union for those who cohabited prior to marriage also demonstrates a higher divorce rate demonstrating that even when considering the combined length of the cohabitation and the marriage, those who went straight to marriage stilled fared better when it came to marital stability.

Figure 8.2 - Risk of divorce by birth cohort



8.3 Hypothesis Two - Examining Cohort Effects and Patterns

Diffusion theory states that acceptance of new social practices will be adopted by a few deviant members initially but as society is exposed to the practice over time, it will then be adopted by the majority of society leaving only a few members who now represent the new deviants. The concept of deviance has been the subject of scholarly debate. It is being used in the sense of frequency for the purposes of this research question. Marriage patterns have been consistent over time. As other institutions begin to change, the family as an institution is confronted with challenges as a result of these changes. The number of women entering the paid workforce has continued to increase. This pattern coincided with extended education for females as they acquire professional and career oriented credentials. This combination has led to a delay in union formation in the traditional form of marriage. Cohabitation has been seen as an adaptive process in family formation patterns in order to address these changes. Cohabitation allows couples to continue their education and establish their professional careers prior to entering marriage or becoming parents (J. M. White, 1991). As cohabitation meets the changing needs of other institutions it will be adopted by the population apart from other social barriers interfering. As a result it is hypothesized that over time, cohabitation prior to marriage will go from being adopted by a small minority to a practice embraced by the majority of the population.

In in addition to this general hypothesis, the data will also be used to test Liefbroer and Dourleijn's diffusion hypothesis that the negative effect of cohabitation on later marital stability will be greatest when only a few or when the majority of the population engage in the practice.

Due to the size of the data set, cohorts were constructed to reduce the computation time as well as allow for the comparison of social change regarding union formation patterns across the 20th century (Table 8-1). Two cohort structures were created, one with eight groups and one with 15 groups. The first structure containing eight cohorts, represented those born from 1900-1930. The next seven cohorts represented the remaining seven decades. A small percentage of participants who were born after the year 2000 were dropped because they were too

young to experience their first unions. The second cohort equaled just under 10% of the sample with the rest ranging from 12-19% each giving a good distribution across the data set. Female represented approximately 52% of the sample. The fifteen category structure creates 5 year period cohorts rather than the 10 year periods for the eight cohorts with two exceptions. Cohort 15 corresponded to cohort 8 from the previous structure and cohort 1 & 2 were broken out of cohort 1 from the first cohort structure. The remaining 12 cohorts divide the 10 year periods from the eight group structure and create 5 year periods in their place. In this more detailed breakdown the 1st and 15th cohorts represent approximately 2.5 % of the sample each and the remaining cohorts range from 4% in cohort 3 to just fewer than 10% in cohort 11.

First unions are important to the analysis in this project. Of the 31,846 respondents 9,521 or 30% reported no union at all which reflect both a higher rate of singleness in the early part of the 20th century and near the end of the 20th century. The latter is both a change in union formation patterns but also reflects the young age of the later cohorts. Marriage was reportedly experienced by 15,059 or almost half of the full sample and 7,266 respondents reported cohabiting as a first union. The breakdown by cohort shows a steady increase in the number cohabiting and after the midpoint of the century a rapid rise in singleness during the same time frame. Marriage numbers remained relatively strong during the early and mid-portion of the century but then begin to drop off during the 1970s. After beginning the century with low divorce rates, the divorce pattern forms a positive curvilinear shape as rates increased during the middle of the century and returned to lower levels later in the in the century.

Cohort - 8	no union	marriage	cohabit	percent	total
1-1900-1929	831	2,961	53	12.07	3,845
2-1930-1939	332	2,308	81	8.54	2,721
3-1940-1949	329	3,168	310	11.95	3,807
4-1950-1959	458	2,899	869	13.27	4,226
5-1960-1969	926	2,520	2,158	17.60	5,604
6-1970-1979	2,540	1,043	2,564	19.30	6,147
7-1980-1989	3,281	160	1,211	14.61	4,652
8-1990-1999	824	0	20	2.65	844
Total	9,521	15,059	7,266	100.00	31,846

Table 8-1 - Union	formation	summary	by	cohort
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Cohort - 15	no union	marriage	cohabit	percent	total
1-1900-1914	222	511	7	2.32	740
2-1915-1929	609	2,450	46	9.75	3,105
3-1930-1934	186	1,071	34	4.05	1,291
4-1935-1939	146	1,237	47	4.49	1,430
5-1940-1944	154	1,464	101	5.40	1,719
6-1945-1949	175	1,704	209	6.56	2,088
7-1950-1954	209	1,458	333	6.28	2,000
8-1955-1959	249	1,441	536	6.99	2,226
9-1960-1964	331	1,417	935	8.42	2,683
10-1965-1969	595	1,103	1,223	9.17	2,921
11-1970-1974	1,136	708	1,319	9.93	3,163
12-1975-1979	1,404	335	1,245	9.37	2,984
13-1980-1984	1,647	131	901	8.41	2,679
14-1985-1989	1,634	29	310	6.20	1,973
15-1990-1999	824	0	20	2.65	844
Total	9,521	15,059	7,266	100.00	31,846

8.3.1 Optimal matching and sequence descriptions

Due to the computational complexity of working with sequence data, this project will look at the cohorts as they were divided up into eight groups. The first step of sequence analysis will be to summarize and describe the sequence patterns as they emerge and develop through the cohorts. The intial description includes both male and female respondents before dropping the male subjects prior to optimal matching taking place. See Appendix B for a detailed summary of cohort 6. Life course theory states that timing, duration and sequencing of events is important to understand the influence of early life events on later life outcomes.

The data was transposed into individual life courses with union states being calculated on a monthly basis from birth until right censoring in the form of death, dropping out or last interview. The user written command file for the statistical software package STATA allows the sequence order of individual cases to be sorted by frequency of transitions. This allows the dominant patterns to be observed and when filtered by cohort the changes in patterns provide valuable information regarding the changing union formation patterns across the life course of the British population across the 20th century. Relational states are the focus of sequence analysis. In order to understand the changing patterns of union formation, the changing frequencies, duration and sequencing of these states will be examined. Each state will be discussed and the relevant changes will be detailed.

8.3.2 Single

Cohorts from the early to mid-20th century, provide an exhaustive life course history while more recent cohorts deal with right censoring to a greater degree because of age issues. For example Cohort 7 and 8 both have the single state as the most frequent reported relationship state (44% and 71%). For Cohort 8 the number is primarily the result of the cohort being 16-25 years of age and not yet fully exposed to the risk of union formation. Singleness in the later part of the 20th

century is returning to higher levels seen in the beginning of the century. During the earliest cohort over 1 in 5 people remained single throughout their lives. This number is over 1 in 4 for females. This high proportion of singleness is consistent with other description of marital patterns in Britain (Schoen & Baj, 1984). The percentage of those remaining single declines steadily until the 1950-1959 birth cohort, Cohort 4, and continues to climb until Cohort 8. Cohort 5 or those born in the 1960s would be through their prime union formation ages and that group sits with 19.98% remaining single. One other interesting observation regarding the proportion of singleness in the cohorts is that during much of the century the ratio between male and female singleness was very similar. In the early part of the century cohort 1 representing those born between 1900-1929 had almost twice as many females remain single as males (27.54% to 15.94%), yet at the end of the century it was males who were more likely to still be single. In cohort 7 the proportions were 40.76 for females compared to 46.27 for males and cohort 8 shows women more likely to enter a union at a younger age with 66.9% still single compared to 75.26 for males.

8.3.3 Marriage

The transition from being single to married is the standard life course for the first two thirds of the century for both males and females. A small group of individuals from the birth cohort of the first 20 years chose cohabitation as their first union. This represents less than 0.5% of the total sample. A large proportion of this early cohort reports their marriage ending in the death of their spouse which would be consistent with old age and greater union stability. Marriage continued to dominate first unions in the second cohort with about 1.5% choosing a different

pathway. With only 13.79% of the population remaining single, about 85% of the population chose to move straight into marriage. This cohort also shows the beginning of a new life course pathway with 17 people indicating they went from being single to cohabiting and then marrying. This emerging pathway is the basis of this research project. By the 1940s over 3% of the sample report following this new pattern with men choosing it slightly more than women (4.04% - 2.2%). Another important pattern that appears in this cohort represents those who went straight to marriage but later separated and divorced followed by a period of cohabitation before a second marriage. This pattern is only followed by a small portion of the population and only appears as an important sequence in cohorts 3 & 4 providing some insight into the acceptability of cohabitation and the continued dominant status of marriage. By the 5th cohort this pattern disappears. The 1950s birth cohort, cohort 4, includes another important pathway. This is the first cohort where there is a larger representation of individuals who enter cohabitation as their first union followed by marriage and later divorce. Although this pattern does appear in other cohorts it is important to note that this is the first cohort that it appears with significant numbers. Cohort 5 shows that 727 individuals cohabited as their first union and then married. This represents over 15% of the sample during that time period. Combine with those who may have cohabited with several people before marriage that number rises to almost 1 in 5 people cohabiting prior to marriage. This 1960s birth cohort still prefers marriage directly with almost 45% doing so, with women slightly more likely to do so than men. This cohort also highlights an emerging pattern of multiple cohabitations with some eventually leading to a

marriage and an almost equal number which don't. This number is still relatively small at 1.5% but it does show that people are willing to move from one cohabiting union to another if they feel their partner is not marriage material. By the 6th cohort direct marriage has dropped to about 16% of the sample compared to approximately 50% going straight to cohabitation first. Of those who do cohabit, about 15% eventually marry. By the 7th cohort or those born in the 1980s, the pattern is pretty clear. About 30% of this group has formed unions with less than 7% being in the form of marriage and only 3% do so directly. This cohort sees cohabitation as the most preferred pathway of union formation with about 80% of those who formed unions have done so with cohabitation.

8.3.4 Cohabitation

The century begins with cohabitation being a choice of a few people and concludes with it being the choice of almost everyone. By looking at the cohorts we can see the pattern as it emerges. Cohort one has a negligible number of cohabitors and very few of those transition later into marriage. During the 1930s the numbers double but still represent a fringe element. In Cohort 3 (1940-1949) the presence of cohabitation begins to grow with those who go from cohabitation to marriage representing about 3% of the pathways, while those who remain in the cohabiting state make up about 2.5% and those who marry then divorce and cohabit make up about 2%. Those born during the 1950s are the first cohort to readily adopt cohabitation in number although for most it is still followed by marriage. 13% of this cohort cohabit then marry while a little over 5% of the pathways stop with the first and only union being cohabitation. The 1960s see cohabitation being a part of 1 in 3

first unions compared to approximately 45% who went straight into marriage. Cohabitations (40%) begins to outnumber marriage (16%) in the sixth cohort while a large number of people continue to remain single (44%). Serial cohabitation or multiple cohabitations begin to grow in popularity with about 9% of the sequences indicating multiple transitions into cohabitating unions. The last reported cohort still has 71% of the respondents in the single state. The remaining 29% have entered cohabiting unions (24%) or marriage directly (3%) or some combination of these at still a relatively young age. Longer observations of this group should reveal more entering into marriage at some point in their lives but based on the data provided that will undoubtedly include at least one spell of cohabitation.

8.3.5 Cluster descriptions by cohort

An examination of the three union formation patterns across time show several patterns of interest (Table 8-2). Overall the direct to marriage and pre-marital cohabitation group show a pattern of lower rates of divorce in earlier cohorts and later cohorts with a noticeable increase during the middle part of the century. This could be attributed to greater social sanctions to divorce earlier in the century and greater alternatives to marriage (Lauer & Yodanis, 2010) in the later part of the century. The divorce rate decreases for those who go straight to marriage followed in frequency by those who marry after cohabiting and finally by those who just cohabit, remain intact throughout the cohorts with a couple noticeable exceptions. Those who cohabit only have a fairly stable pattern of dissolution. About 25% of the couple who choose to cohabit will dissolve and the majority do so within 5 years. In

the early part of the century the small number of women who cohabited had just as much likelihood of dissolving as those who married after living together.

A second important observation has to do with the converging divorce rates for later cohorts of those who go straight to marriage and those who cohabit first, especially when considering the total length of the relationship for former cohabitors. When looking at the total union length of former cohabitors, and non-cohabitors, the likelihood of divorce is actually less prior to10 years together for former cohabitors than for non-cohabitors for cohorts 11 and 12. This means that those born in the 1970s reflect the first potential support for the demise of the cohabitation effect. This difference reverses again when looking at relationships that dissolved prior to 15 years together so that any conclusions must be tentative.

Seque	nce Order 1	1900-19	29	Se	quence Order 1	930-193	39	S	equence Order 1	940-194	19
Sequence-Or				Se quence-0	Dr			Sequence	-Or		
der	Freq.	Percent	Cum.	der	Fre q.	Percent	Cum.	der	Freq.	Pe rce nt	Cum.
13	1,389	37.93	37.93	13	1,577	63.95	63.95	13	2,331	70.53	70.53
136	1,202	32.82	70.75	136	360	14.6	78.55	1	347	10.5	81.03
1	837	22.86	93.61	1	340	13.79	92.34	136	157	4.75	85.78
1363	60	1.64	95.25	1345	59	2.39	94.73	123	102	3.09	88.87
13636	60	1.64	96.89	135	31	1.26	95.99	1345	101	3.06	91.92
1345	41	1.12	98.01	12	24	0.97	96.96	12	82	2.48	94.4
134	26	0.71	98.72	1363	21	0.85	97.81	134523	63	3 1.91	96.31
135	19	0.52	99.24	13453	20	0.81	98.62	135	51	1.54	97.85
121	14	0.38	99.62	123	17	0.69	99.31	13453	38	1.15	99
134536	14	0.38	100	134523	17	0.69	100	134	33	3 1	. 100
Total	3,662	100		Total	2,466	100		Total	3,305	; 100	0
. sqtab if s ==	1, ranks	(1/10) so		. sqtab if s=	= 1, ranks	(1/10) so		. sqtab if s	== 1, ran ks	(1/10) so	
Seque nce-Or				Se quence-C	Dr			Sequence	-Or		
der	Freq.	Percent	Cum.	der	Fre q.	Percent	Cum.	der	Freq.	Pe rce nt	Cum.
13	850	56.22	56.22	13	845	72.16	72.16	13	1,147	72.41	. 72.41
136	318	21.03	77.25	1	154	13.15	85.31	1	165	5 10.42	82.83
1	241	15.94	93.19	136	77	6.58	91.89	123	64	4.04	86.87
1363	42	2.78	95.97	12	15	1.28	93.17	12	53	3.35	90.21
1345	16	1.06	97.02	1345	15	1.28	94.45	1345	37	2.34	92.55
134	10	0.66	97.69	1353	12	1.02	95.47	136	36	5 2.27	94.82
13423	10	0.66	98.35	123	11	0.94	96.41	134523	28	1.77	96.59
13636	9	0.6	98.94	13453	11	0.94	97.35	13423	19	1.2	97.79
1353	8	0.53	99.47	135	11	0.94	98.29	13453	18	3 1.14	98.93
13623	8	0.53	100	1323	10	0.85	99.15	135	17	1.07	100
				134523	10	0.85	100				
Total	1.512	100	0					Total	1.584	100)
				Total	1,171	100					
. sqtab if s ==	2, ranks	(1/10) so						. sqtab if s	== 2, ran ks	(1/10) so	
C				. sqtab ir s=	= 2, ranks	(1/10) so		6	0-		
sequence-Or	F	Dever	0	C	D			Sequence	-Or	Do you wh	0
der	Freq.	Percent	Cum.	Se quence-u	Jr Francisco	D	0	der	Freq.	Percent	cum.
405		40.05	40.05	der	Fre q.	Percent	cum.				
136	884	40.85	40.85					13	1,184	68.44	68.44
1	596	27.54	68.39	13	/32	55.54	55.54	1	182	10.52	/8.96
13	539	24.91	93.3	136	283	21.4/	77.01	136	121	. 6.99	85.95
13636	51	2.36	95.66	1	186	14.11	91.12	1345	64	3./	89.65
1345	25	1.16	96.81	1345	44	3.34	94.46	123	38	3 2.2	91.85
1363	18	0.83	97.64	135	20	1.52	95.98	134523	35	2.02	93.8/
134	16	0.74	98.38	1363	13	0.99	96.97	135	34	1.97	95.84
135	14	0.65	99.03	12	9	0.68	97.65	12	29	1.68	97.51
134536	12	0.55	99.58	13453	9	0.68	98.33	134	23	1.33	98.84
13536	9	0.42	100	134536	8	0.61	98.94	13453	20	1.16	100
				13423	7	0.53	99.47				
Total	2,164	100		134523	7	0.53	100	Total	1.730	100	0

Table 8-2 - Sequence order by cluster 1-6

- 1 = single 2 = cohabiting
- 3 = married
- 4 = separated
- 5 = divorced
- 6 = widowed

Sequence order by cluster 1-6 (cont.)

Sequer	nce Order 1	950-195	9	Sequence Order 1960-1969		Sequence Order 1970-1979					
Sequence-Or				Sequence-C	Dr			Sequence-Or			
der	Freq.	Percent	Cum.	der	Freq.	Percent	Cum.	der	Freq.	Percent	Cum.
13	2,147	61.17	61.17	13	1,969	41.68	41.68	1	2,552	43.53	43.53
1	477	13.59	74.76	1	944	19.98	61.66	12	1,086	18.52	62.05
123	277	7.89	82.65	123	727	15.39	77.05	13	917	15.64	77.69
12	184	5.24	87.89	12	540	11.43	88.48	123	759	12.95	90.64
1345	109	3.11	91	121	160	3.39	91.87	121	247	4.21	94.85
134	62	1.77	92.76	1345	90	1.91	93,78	1212	103	1.76	96.61
134523	55	1.57	94.33	134	87	1.84	95.62	1213	65	1.11	97.71
12345	43	1.23	95.56	12123	81	1.71	97.33	12123	56	0.96	98.67
1323	42	1.2	96.75	1213	69	1.46	98.79	12121	48	0.82	99.49
121	38	1.08	97.83	1212	57	1 21	100	134	30	0.51	100
13423	38	1.00	98.92		5,		100	15.		0.51	100
13453	38	1.08	100	Total	4,724	100		Total	5,863	100	
Total	3,510	100		. sqtab if s =	= 1, ranks	(1/10) so		. sqtab if s ==	1, ranks	(1/10) so	
. sqtab if s ==	1, ranks	(1/10) so		Sequence-C	Dr			Sequence-Or			
				der	Freq.	Percent	Cum.	der	Freq.	Percent	Cum.
Sequence-Or											
der	Freq.	Percent	Cum.	13	948	39.03	39.03	1	1,358	46.27	46.27
				1	542	22.31	61.34	12	580	19.76	66.03
13	1,057	61.38	61.38	123	398	16.39	77.73	13	423	14.41	80.44
1	241	14	75.38	12	301	12.39	90.12	123	363	12.37	92.81
123	163	9.47	84.84	121	76	3.13	93.25	121	98	3.34	96.15
12	107	6.21	91.06	12123	34	1.4	94.65	1212	44	1.5	97.65
1345	36	2.09	93.15	1213	34	1.4	96.05	1213	23	0.78	98.43
134	27	1.57	94.72	1212	33	1.36	97.41	12123	19	0.65	99.08
12345	24	1.39	96.11	12121	21	0.86	98.27	12121	17	0.58	99.66
1323	24	1.39	97.5	134	21	0.86	99.14	1345	10	0.34	100
121	22	1.28	98.78	1345	21	0.86	100				
13453	21	1.22	100					Total	2,935	100	
				Total	2,429	100					
Total	1,722	100				1.1.0		. sqtab if s ==	2, ranks	(1/10) so	
		(4.140)		. sqtab if s =	= 2, ranks	(1/10) so					
. sqtab if s ==	2, ranks	(1/10) so						Sequence-Or	-	-	
Sequence-Or	-	. .	-	Sequence-C	Jr –		0	aer	Freq.	Percent	Cum.
der	Freq.	Percent	Cum.	der	Freq.	Percent	Cum.				
								1	1,194	40.76	40.76
13	1,090	62.61	62.61	13	1,021	43.9	43.9	12	506	17.28	58.04
1	236	13.56	76.16	1	402	17.28	61.18	13	494	16.87	74.91
123	114	6.55	82.71	123	329	14.14	75.32	123	396	13.52	88.43
12	77	4.42	87.13	12	239	10.28	85.6	121	149	5.09	93.51
1345	73	4.19	91.33	121	84	3.61	89.21	1212	59	2.01	95.53
134523	44	2.53	93.85	1345	69	2.97	92.18	1213	42	1.43	96.96
134	35	2.01	95.86	134	66	2.84	95.01	12123	37	1.26	98.22
135	26	1.49	97.36	12123	47	2.02	97.03	12121	31	1.06	99.28
136	24	1.38	98.74	1213	35	1.5	98.54	134	21	0.72	100
13423	22	1.26	100	12345	34	1.46	100				
Total	1,741	100		Total	2,326	100		Total	2,929	100	

1 = single

2 = cohabiting

3 = married

4 = separated 5 = divorced

6 = widowed

8.3.6 Optimal matching descriptions

Optimal matching was done on the female filtered data set based on the eight cohort structure outlined earlier. OMA provides a variety of ways to compare sequences. The more detailed approach to sequence comparison was used. It involved the calculation of distance measures of each sequence from every other sequence. Full pairwise comparisons were performed of each sequence. The Needleman-Wuncsh algorithm, the standard in the social sciences for the purpose of assigning a distance value relative to all the other sequences, was used. Default indels were used and the k(#) option was used to increase the speed of computation. Sensitivity measures were done to assess the impact of different substitution matrices and k options. The conclusion was the findings were robust and the use of different substitution matrices didn't provide substantially different clustering conclusions. The next step in OMA was the creation of clusters. Cluster analysis, the most widely used follow up analytic strategy, was applied to the distance matrix sequence values through Ward's linkage to create groupings of sequences. It was determined that a four cluster solution provided suitable distinctions to see the transforming cohort patterns around union formation.

The three cohort cluster solutions provide a clear view of the changing union formation patterns during this important time in the adoption of cohabitation (Figure 8.3, Figure 8.4, Figure 8.5). A general overview shows the relative homogeneity of single to marriage as the pattern in Cohort 4 with the emergence of cohabitation as a union state in Cohort 5 and finally the pattern of cohabitation prior to marriage and as a standalone union pattern.





Cohort 4 shows that the pattern of single to marriage dominates the sample. This pattern exists both for those who marry early or marry later. Cluster 4 shows some interesting insights into later cohort patterns. This cluster represents relationship instability. These are individuals who entered marriage generally apart from prior cohabitation but experience separation and divorce. What is interesting about this group is that after divorce, some members of this group try cohabitation as their next union choice.



Figure 8.4 - Sequence analysis cohort 5

Cohort 5 resembles Cohort 4 in that there is a definite trend toward marriage as the preferred union state. Cluster 2 and cluster 4 show relatively stable marriage patterns after marriages earlier and later in life. Cluster 3 highlights a pattern of early marriage followed by later union instability and spells of cohabitation after failed marriages. Cluster 1 shows an emerging pattern of both early and later union formation with cohabitation being the preferred state.



Figure 8.5 - Sequence analysis cohort 6

The most noticeable difference of Cohort 6 from the previous two cohorts is the emergence of a cohabitation only cluster in cluster one. Cluster one shows a combination of early cohabitation before returning to being single for longer periods and shorter spells of cohabitation followed by marriage. This cluster seems to be consistent with those individuals who view cohabitation as a trial marriage. Some go on to marriage and for others they leave the relationship. Even cluster 4 highlights the role cohabitation has begun to play in longer term stable marriages.

8.3.7 Summary of sequence data

The data once again provide strong support for the changing dynamic of union formation patterns and the relationship of premarital cohabitation on later marital stability across time. At the beginning of the 20th century cohabitation was practiced by just a small proportion of the population. It gradually rose across the cohorts and then rapidly during the third quarter of the century. By the final cohort about 9 out of 10 couples enter cohabitation as their first union.

Support for the second portion of this hypothesis is mixed. While Liefbroer and Dourleijn used data from 16 European countries to test their hypothesis, this project was designed to capture changing adoption rates across the same population. Due to the limited life course of the later cohorts it is premature to draw conclusions regarding the curvilinear pattern described by Liefbroer and Dourleijn. The data does provide some support for the changing influence of premarital cohabitation on later marital stability. The smaller samples of the latter cohorts showed the negative impact of premarital cohabitation on later material stability may be disappearing and / or reversing in influence when compared to the earlier cohort union formation patterns. Cohorts 7 and 8 had a relatively small number of marriages compared to the cohabiting unions and as a result provided only insights into potential changes in the cohabitation effect.

8.4 Hypothesis Three - Identifying Salient Selection Variables Over Time

The final element of the hypothesis testing is a direct result of the cohabitation effect being identified as well as a clear cohort transition patterns emerging across cohorts 4, 5 and 6. If support for a cohabitation effect exists and that effect changes across cohorts, then the change across those cohorts must be attributed to mechanisms at work in the form of constructs influencing the cohabitation effect to a lesser or greater degree. Hypothesis three suggests that the most salient

mechanisms accounting for the cohabitation effect will emerge as the overall effect

diminishes and cohabitation becomes more normative. Several variable level

hypotheses involving variables previously shown to be associated with a

cohabitation effect are used to guide the testing of this hypothesis. The following

relationships presented in Table 8-3 with the explanatory variables are expected:

Variable	Hypothesis
Relationship Pathway	Former cohabitors will have higher odds of union dissolution than those who go straight to marriage but these odds will decline from earlier waves to later waves
Age at First Union	Unions that take place early (before age 21) will be less stable than those entered into after age 21. This will be stable from earlier waves to later waves.
Dispersion	Union stability will increase as the percentage of the population choosing cohabitation as their first union approaches that of the straight to marriage group. Stability will increase from early to later waves.
Religion	Religion will be positively related to martial stability and will increase in strength across time from early to later waves.
Education	Education will be positively associated with marital stability but will diminish in strength from early to later waves.
Traditional family views	More traditional family values will be associated with greater marital stability and remain stable across waves
Dependent Child	The presence of a dependent child under aged 12 and under will act as a deterrent to divorce and therefore be strongly related to union stability across waves.
Ethnicity	Ethnicities that embrace a more traditional view of marriage will be less associated with divorce. It is hypothesized that non-white groups will be more conservative and have greater union stability. Time will not affect this based on the assumption that new immigrants and ethnic enclaves will offset enculturation.
Region	Those born in rural areas will be assumed to have been raised in rural areas and as a result would have more stable relationships than urban and this relationship would be stable throughout waves.

 Table 8-3 - Variable level hypotheses

8.4.1 Logistic regression models

To test hypothesis three this project will look at three relevant waves of data which will allow the three cohorts to be studied in a broader population. The three time point measures representing the period that correspond to the decline in the cohabitation effect are taken from the panel data of BHPS. The importance of these three waves of data is that they allow the capturing of the time when adults have been identified as strong adopters of cohabitation and have been exposed to marriage and divorce because of their ages. The importance of using the three waves of the BHPS panels to proxy cohort 4, 5, & 6 is a key part of the design as discussed below. Logistic regression will be used to test the changing impact across the three time periods. This combination of period and cohort will allow the research design to illustrate any changes in the explanatory mechanisms across cohorts and periods. The dependent variable will be whether the union is intact or not at the 10 year anniversary from the start of the union and the independent variables will be relationship pathway, age at union, percent cohabiting, total union length, education, religion, care of a dependent child, traditional family views, ethnicity, region of birth. These independent variables represent four clusters of relevant variables; (pathways), (timing and frequency), (time variant selection) and (constant demographic controls).

The strategy employed will involve three waves of BHPS panel data. This will allow a more concentrated focus on three cohorts representing the 1950s, 1960s and 1970s which have been identified to be associated with drastically changing cohabitation patterns. Wave collection times roughly correlate with when the three

cohorts would have more likelihood of union formation. Wave A which was collected September 3, 1991 to January 30, 1992, Wave I was collected September 1, 1999 to April 30, 2000 and Wave R was collected September 1, 2008 to April 9, 2009. This panel data will be used to address the demographic shift captured in the panel (Figure 8.6). This model allows a close correlation between the time the waves were administered and the mean ages of each of the cohorts examined.

In order to both simplify the design and to avoid creating models that look at the extremes of the research question with regards to union formation patterns, this project will employ the following restrictions: 1) The binary outcome captures whether the individual is still married or divorced; 2) The field of union types has been restricted to just those whose first union was marriage or first union was cohabitation and then the cohabitation was ended by marriage; 3) The time point measure will be accessed at 120 months following the start of the union. This time point allow for a comparison of length of time exposed to relationship instability and also captures the period of greatest risk for that instability; 4) The start of the union will be defined as the month of marriage for those who went straight to marriage and the month that the cohabitation began for former cohabitors. This definition allows the total unions to be compared rather than just the marital portions and has been shown to better reflect the length of cohabiting unions that precede marriage (Smock et al., 2008). In addition to this simplified structure, right censoring issues are addressed by dropping cases in which the respondents union did not begin prior to the beginning of the 120 month window. When Wave A data is used in the model,

then all unions not beginning prior to 1981 will be dropped since they will be right censored before being exposed to the risk of divorce before 10 years.

Birth Cohort 1-4 -1900 -59)		
BHPS Interview Wave A - 1991 Unions dropped that began after 1981	Birth Cohort 5 - 1960 - 69 BHPS Interview Wave I -2000 Unions dropped that began after 1990	Birth Cohort 6 - 1970-79 BHPS Interview Wave R -2009 Unions dropped that began after 1999	

Figure 8.6 - Cohort and period design

8.4.2 Variable construction

The construction of variables followed basic guidelines. First, for logistic regression, the male population was put back into the set. This allowed for larger sample sizes and allowed gender to be a variable to be included in the general models. The concern of duplicate couple cases is offset by the advantage this strategy provides over the variety of imputation options that are known to effect coefficients. In an attempt to minimize lost cases some variables were dummied because of large numbers of inapplicable cases. Judgements regarding the suitability of coding cases labelled *inapplicable* with "0" were made on a variable by variable case. The details of the process are discussed with each variable below. Proxy responses and cases clearly labelled as *missing* were dropped.

8.4.2.1 Dependent variable

8.4.2.1.1 Relationship status

Relationship status is a dummy variable constructed to identify whether a relationship is intact or dissolved. This variable is calculated using the UK Data Archive: Study Number 5629 - British Household Panel Survey Consolidated Marital, Cohabitation and Fertility Histories, 1991-2009. The data set began with 32,342 cases. After cleaning the data for coding discrepancies and missing data, 31,846 cases remained. Union status was determined for all unions regardless of whether there was a marriage involved. For the purpose of this study, singles and current cohabitors were dropped and that left 17,614 cases available with full relationship histories. If the union was still intact then the value of "1" was assigned to that case. If the relationship involved a marriage followed by a divorce a value of "0" was assigned. If the relationship involved only cohabitation and not a marriage but included an end date for the relationship, a value of "0" was assigned. Similar to the process in hypothesis one, the duration of the unions were used to measure dissolution rates at four different time points in addition to a lifetime calculation. Frequency of divorce was calculated at 5, 10, 15 and 20 years. Logistic regression was then done at 5 years and 10 years of total union length. Summary statistics are reported in Table 8-4. and Table 8-5.

	Observations	Mean	Std. Dev.	Min	Max
Divorce by 10	17,614	.0843	.2779	0	1

	Relationship Type				
Divorce by 10 years	married	former cohabitor	Total		
No	13,678	2,450	16,128		
Yes	1,191	295	1,486		
Total	14,869	2,745	17,614		

Table 8-5 - Marital status at 10 years - by state

8.4.2.2 Independent variables

8.4.2.2.1 Relationship pathway

Continuing with the life course perspective, this variable captures the respondent's relationship pathway in a simplified fashion. The same process described in calculating the dependant variable was used to create the relationship pathway variable. The initial full data set was based on BHPS data set 5629 which collected data for 32,342 adults. After cleaning the data for coding discrepancies and missing data, 31,846 cases remained. These cases were then coded for four different relationship pathways based on their first union type. Those who remained single across their life course were coded "1", those who went straight to marriage were coded "2", former cohabitors who ended their first cohabitation with marriage "3" and current cohabitors "4". For the purpose of this study, singles and current cohabitors were dropped and that left 17,614 cases available with full relationship histories (Table 8-6).

Table 8-6	- Relationshi	p pathways
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	Frequency	Percent	Cumulative
Straight to marriage	14,869	84.42	84.42
Former cohabitors	2,745	15.58	100.00

8.4.2.2.2 Religion

Religiosity has been shown to be negatively associated with the relational status of divorce (Call & Heaton, 1997; Kiernan, 2004; Thornton et al., 2007). As a

result it is expected that this negative relationship will exist and remain strong across time periods. The religion construct was looked at by using one question from BHPS. Initially three questions were drawn from the BHPS 5151 data set. The three were selected because they each gauge a different element of religiosity. The first question asked, "Do you regard yourself as belonging to any particular religion? If yes which?" Further delineation was available for those who identified themselves as Christians. This question accesses identification with a religion. The second question asks about the frequency of attending religious services and provides a five point Likert scale of descending frequency. This question accesses religious behaviour. The final question asked "How much difference would you say religious beliefs make to your life?" The response was a 4 point Likert scale in ascending order. Preliminary tests showed inconsistent results with the dependent variable as a result of missing data for the denomination question and non-significance for the personal reflection question. As a result the single indicator of religious attendance was kept. Religious attendance although simplistic in measurement, is still considered to be a good indicator of religiosity (Brenner, 2011). The religious attendance variable had missing and proxy responses. After these were dropped, Wave R needed to be recoded since it included one extra Likert category. Wave A and I were composed of a 4 point Likert scale asking respondents how often they attendance religious services and ranged from *practically never* to once a week or more (Table 8-7). Wave R changed the options slightly by including a *never*" category in addition to only at weddings, funerals etc. These two categories were collapsed to parallel

Wave A and I. After the recoding, Wave A was left with 9,873 observations, Wave I

had 10,460 and Wave R had 8,580 observations (Table 8-8).

Attendance at a religious service			
	Frequency	Percent	Cumulative
Practically never	4,616	46.75	46.75
At least 1x year	3,287	33.29	80.05
At least 1x month	703	7.12	87.17
Once a week or +	1,267	12.83	100.00
Total	9,873	100.00	

Table 8-7 - Wave A religious attendance

Table 8-8 - Religious attendance N

Religious attendance	Observations	Mean	Std. Dev.	Min	Max
Wave A	9,873	1.860	1.016	1	4
Wave I	10,460	1.68	1.688	1	4
Wave R	8,550	1.82	1.145	1	4

8.4.2.2.3 Education

Earlier adoptors of cohabitation were made up of lower educated partners. The higher educated population began to adopt the practice as it became more socially accepted. More recent work has showed little correlation between cohabitation and education (Thomson & Bernhardt, 2010). Therefore it is expected that amount of education will be positively associated with relationship stability in Wave A but will diminish in power to predict later divorce across waves. The education measure was composed of the calculated value to the International Standard Classification of Education or ISCED. This scale is an ascending scale measuring more advanced educational attainment with a higher value (Table 8-9). After removing missing values for education Wave A was left with 7.595 observations, Wave I had 10,475 and Wave R was left with 8,580 cases. Wave A
had a slight positive skewness and so a binomial variable was created at the mean and tested with the model to compare the findings. Pseudo r² values were almost identical as well as odds ratios of the variable in the equation. As a result the original variable was kept (Table 8-10).

Table 8-9 - Wave I	education measure
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Isced levels			
	Frequency	Percent	Cumulative
Not defined	56	0.53	0.53
Primary	3,234	30.87	31.41
Low secondary	153	1.46	32.87
3C: low secondary vocational	2,941	28.08	60.95
3a: hi secondary vocational	982	9.37	70.32
5b: higher vocational	2,036	19.44	89.76
5a: first degree	861	8.22	97.98
6: higher degree	212	2.02	100.00
Total	10,475	100.00	

Table 8-10 - Education measure

Education	Observations	Mean	Std. Dev.	Min	Max
Wave A	7,595	2.854	1.702	0	7
Wave I	10,475	3.161	1.790	0	7
Wave R	8,580	3.399	1.829	0	7

8.4.2.2.4 Duration

Teachman and Polonko (1990) found that when total union length was taken into account, there was no marital instability difference between former cohabitors and those who went straight to marriage. They also noted that cohabitation lengths under 6 months had little impact on later marital stability. Yet when Hewitt and de Vaus (2009) used Australian data to study the cohabitation effect, it indicated that more recent cohorts benefit from longer cohabitation prior to marriage. This study will treat union duration by calculating it from the date when the first marriage began or in the case of former cohabitors, when the cohabitation began. This study is only

looking at first marriages and first cohabitations that ended in first marriages. This simplifies the comparison process and presents a more realistic approach to studying the early formation of long term stable relationships. The first and second hypothesis in this study showed that cohabitation relationships are the least stable. The role of cohabitation prior to marriage is the focus of this study and not primarily the instability of cohabitating relationships. Ample research has pointed to greater instability for frequent cohabitors. This may tell us important information about the frequent cohabitor but it does not tell us much about the experience of cohabitation on later marital stability when we isolate the pathway to more closely resemble that of non-cohabitors. The duration of total union was calculated using the sequence data from BHPS file 5629, the family history data set complied from the BHPS master data file. All union histories are recorded by monthly time periods and as a result the duration values are in months. Earlier waves have longer unions but also greater variability (Table 8-11). Wave R captures the most recent trends in union formation and stability patterns and represents when the birth cohort of the 1970s begins to enter the normative union formation age. More recent cohorts lacked the longitudinal data to be of value for this project. The research design uses a time point measure of union length at 60 months and 120 months in order to capture the changing dynamic of union patterns. Only 120 month or 10 year time points are reported in this project.

Total union length	Observations	Mean	Std. Dev.	Min	Max
Wave A	3,384	152.85	127.45	1	478
Wave I	3,533	110.18	83.43	1	390
Wave R	1,861	81.01	50.60	1	267.5

Table 8-11 - Union length by cohort

8.4.2.2.5 Diffusion

Lu, Qian, Cunningham, and Li (2012) found in the study of the National Survey of Families and Households that selection effects disappeared once cohabitation became prevalent. (Liefbroer & Dourleijn, 2006) noted this in their cross cultural study as well. This leads to the expected finding that as cohabitation percent increases, the any negative correlation of premarital cohabitation on later stability will decrease. The diffusion value was calculated using union formation data from the BHPS file 5629. The value was calculated by determining the percent of first unions that were cohabitations in relationship to those that were marriages. Values were calculated by cohort and assigned to participants based on their cohort (Table 8-12). Earlier cohorts exhibit a very low prevalence of former cohabitors to noncohabitors. There is a small increase in the raw number of cases but a large percentage increase of over 300% from cohort 1 to cohort 3. This pattern of percentage increase continues with over 300% increase in the number of first union being cohabitors compared to straight to marriage. The raw numbers indicate that for those born in the 1980s almost 9 out of 10 people chose to cohabit as their first union type.

Table 8-12 - Proportion cohabiting

Cohort	Birth Year	Proportion Cohabiting
1	1900-1929	.0175
2	1930-1939	.0286
3	1940-1949	.0683
4	1950-1959	.2027
5	1960-1969	.428
6	1970-1979	.7013
7	1980-1989	.8841

8.4.2.2.6 Ethnicity

Cohabitation has become normative first among northern European countries and in some other western countries such as Canada and Australia. Asian and South Asian countries have relatively few couples cohabiting. It is expected the ethnic minorities represent more conservative views when it comes to cohabitation (although there are numerous exceptions) and divorce, therefore it is expected that ethnicity will be less associated with divorce. The values of this variable come directly from the BHPS which asked each respondent the following question about their ethnicity. "To which of these ethnic groups do you consider you belong?" There were several categorical responses (Table 8-13). There was also a write in option provided for those who wanted to give a response that was not included in the categorical list. This variable required recoding because of the large number of respondents who indicated their ethnicity as White. In addition there was a problem with a large number of inapplicable answers as a result of no direct equivalent in the full questionnaire. These values come primarily from Wave R. The variable was dummied so that those who indicated White as their response were coded "1" and

others were coded "0". The large numbers of "inapplicable" were also coded as "0" in

order to preserve cases. The missing and refused were both dropped.

Ethnic categories			
	Frequency	Percent	Cumulative
missing or wild	153	0.48	0.48
inapplicable	4,977	15.63	16.11
refused	25	0.08	16.19
white	25,866	81.23	97.42
black-carib	130	0.41	97.82
black-african	82	0.26	98.08
black-other	61	0.19	98.27
indian	193	0.61	98.88
pakistani	133	0.42	99.30
bangladeshi	41	0.13	99.43
chinese	23	0.07	99.50
other ethnic grp	160	0.50	100.00
Total	31,844	100.00	

Table 8-13 - Ethnic categorical responses

8.4.2.2.7 Age at union

Much research has pointed to the negative effect of early marriage in relationship to later marital stability (Demo & Fine, 2010). Youth often lack the maturity needed to deal with conflict that comes with intimate relationships and as a result early cohabitation also creates instability. It is expected that the younger the age at union formation the higher the association with later divorce. Age at first union was derived from the family and fertility history file. In order to capture the importance of being "old enough" without distorting the findings with a continuous scale into old age, this variable was dummied as well. Those whose first union began at age 21 years or older were coded "1" and those whose first union began under the age of 21 years were coded "0". Most relationships began after age 21

with 12.5% beginning their first marriage or first cohabitation that turned into

marriage, prior to age 21(Table 8-14).

Was the first union entered into at age 21+			
-	Frequency	Percent	Cumulative
No	2,244	12.74	12.74
Yes	15,370	87.26	100.00
Total	17,614	100.00	

Table 8-14 - Age at first union

8.4.2.2.8 Region

This data set looks at relationship patterns across Britain. The wide variety of locations that people come from creates the opportunity to look at the impact regional differences including rural and urban classification, may have on later marital stability. Regional differences within a country may lead to great variation in relationship patterns as illustrated by the province of Quebec in Canada. The cohabitation rates and outcomes differ vastly from the rest of the Canada (Ambert, 2005). Research also supports the fact that rural living is associated with lower rates of cohabitation and greater marital stability (Thornton et al., 2007). It is expected that those born in rural areas will have greater marital stability across the cohorts and time periods. The variable constructed to test this was a dichotomous variable derived from the place of birth provided by the respondent. This data were used to assign each respondent to a place of birth that was classified as rural or urban. "1" was the code used for those from a rural birth place and "0" for those from an urban birth location. The variable is coded with the assumption that the birth place of the respondent is likely where they were raised and socialized as a young adult. This is obviously not the case for every participant but in lieu of better variables, this one is

utilized. The data values applied used current classification and since this data set contains respondents from the beginning of the 20th century, this should be considered a crude proxy of both birth and upbringing. The Rural Evidence Research Centre (RERC) indicates that four types of settlements have been devised. Urban centers with a population over 10,000, as well as three different rural classifications; Town or Fringe, Village and Hamlet (Bibby & Shepherd, 2004). Information provided from the RERC was then translated to correspond to the place of birth variable found in the BHPS. The BHPS variable had 1,919 missing values. 32 respondents refused to answer and 34 people indicated they didn't know. These observations were all dropped. The 3,026 inapplicable cases were assigned the value "0" in an attempt to distinguish them from those indicating a rural birthplace and to conserve cases. The final recoding meant that 11,668 people indicated they were not born in a major center (Table 8-15).

Born in a rural location?			
	Frequency	Percent	Cumulative
No	18,260	61.01	61.01
Yes	11,668	38.99	100.00
Total	29,928	100.00	

Table 8-15 - Rural or urban birth place

8.4.2.2.9 Dependent child

The presence of children has be shown to act as a barrier against marital dissolution (Knoester & Booth, 2000). It is expected that younger children will act more as a barrier to divorce than older children and that relationship between a dependent child and later divorce will remain inversely related across the cohorts and waves. The dependent child variable was derived from one question in the

BHPS that asked respondents "Are you responsible for a child under 16?" Missing responses were dropped and inapplicable cases were coded as "no" or "0" in order to maintain observation size. Not all individuals who answered this question in Wave A, I and R were in the BHPS 5629 study and so as a result there are missing cases from this file. The conservative approach is to do a listwise deletion and that is what was done. This variable is distinct in the gender breakdown of the respondents. The "yes" values almost exclusively belong to the female respondents (Table 8-16). In all three waves the males indicate that they are responsible for a child under 16 almost never (Table 8-17). Findings were similar when the age of 12 was inserted rather than 16. It should be noted that these respondents are only from the union formation pathways that included marriage. This highlights the even greater disparity in recognizing who feels a sense of responsibility for children.

Responsible for a child under 16 (1=yes 0=no)			
	Yes	No	Cumulative
Wave A	1,402	2,787	4,189
Wave I	1,927	3,937	5,864
Wave R	1,528	3,632	5,160

Table 8-16 - Responsible for a child under 16 - females

Table 8-17 - Responsible for a e	child under 16 - males
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Responsible for a child under 16 (1=yes 0=no)			
	Yes	No	Cumulative
Wave A	35	3,371	3,406
Wave I	39	4,803	4,842
Wave R	26	4,012	4,038

8.4.2.2.10 Traditional family views

Traditional family values are correlated with traditional views of marriage, divorce and cohabitation (Kalmijn, 2007). It is expected that those individuals who agree with more traditional views of marriage, will have lower dissolution rates and less likely to cohabit. This relationship should be more pronounced in times of extreme rejection or adoption of traditional values regarding intimate relationships. One interview question was used from the BHPS to determine the respondent's identification with traditional family values. The question was given a value from a 5 point Likert scale that ranged from *strongly agree* to *strongly disagree*. The question looked at the respondent's view of a non-traditional family structure by asking, "A single parent can bring up children as well as a couple." It should be noted that this question were not asked in Wave R of the study and as a result the data for this variables only was substituted from Wave Q.

This variable exposes the polarization of opinions regarding beliefs and ideas about ideal family types. The distribution of Wave A in Table 8-18 is quite symmetrical and the means and standard distribution are quite stable across the frist two time points as shown in Table 8-19.

Are single parents as good as two parents?	Frequency	Percent	Cumulative
strongly agree	586	8.04	8.04
agree	2,165	29.21	37.25
not agree/disagree	1,627	21.95	59.19
disagree	2,487	33.55	92.74
strongly disagree	538	7.26	100
Total	7,413	100.00	

Table 8-18 -	 Traditional 	family	values -	Wave	Α
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Are single parents as good as two parents?	Observations	Mean	Std. Dev.	Min	Max
Wave A	7,413	3.027	1.113	1	5
Wave I	10,245	2.913	1.076	1	5
Wave Q	8,700	2.087	1.047	1	5

Table 8-19 - Recoded values for single parents just as good after the merge

8.4.2.2.11 Interaction effects

Preliminary analysis indicated a potential interaction between the main independent variable, fmr_cohab (whether someone had cohabited prior to marriage or not) and two other variables. The first was the continuous variable that measured the proportion of people whose first relationship was a cohabiting relationship compared to those who went straight to marriage. The second was the dichotomous variable indicating whether someone began their first union before or after age 21. The interaction variables were created and found to be statistically significant (Table 8-20 and Table 8-21). Figure 8.7 and Figure 8.8 show the interaction in a linear fashion. Since the interactions contain one binary variable, the relationship would be less linear than indicated by the graph. What the graph does show is that the interaction is clearly visible with divorce being more likely when cohabitation is more normative than when it is not and this relationship is more pronounced for former cohabitors and when the relationship is less than 10 years. Further analysis (results not reported) indicates that for divorce measured at the ten year mark the relationship is significant at the mean of the proportion of cohabitors (about 23%). The trend line indicates a declining difference of divorce between former cohabitors and those who went straight to marriage. At 1 SD above the mean or when the proportion of cohabitors is around 47% the coefficient is still indicating a

cohabitation effect but it is not significant. 2 SD above the mean or when the proportion of cohabitors is around 71% the cohabitation effect reverses and the coefficient is significant indicating that when the proportion of cohabitors reaches a level between 47% and 71% the cohabitation effect is weaker. At this point of diffusion (71%) there is a negative relationship between former cohabits and their likelihood of divorce indicating it may help reduce rather than enhance it.





	Divorced by year 5	Divorced by year 10
Former cohabitor	1.722***	1.517***
	(16.24)	(12.15)
Proportion cohabiting	-0 602***	-1 579***
r roportion conconting	(-4.69)	(-9.05)
	. ,	, , , , , , , , , , , , , , , , , , ,
fmr_cohab X pro_cohab	-2.324***	-2.096***
	(-8.83)	(-5.97)
conc	-1 027***	-2 181***
_0015	-1.927	-2.101
	(-30.09)	(-30.05)
N	17,614	17,614
z statistics in narentheses		

Table 8-20 - Interaction effect – 5 & 10 years for proportion cohabiting

p < 0.05, p < 0.01, p < 0.001

Figure 8.8 - Interaction effects - 10 years



Another interaction term was created to produce the product between the binary variable measuring relationship stability and the binary variable measuring

whether someone's first marriage or first cohabitation that led to a first marriage took place before or after age 21. The interaction variables were created and found to be statistically significant for both the 5 year the 10 year time point measurement (Table 8-21). Figure 8.9 and Figure 8.10 show the interaction in a linear fashion. Figure 8.9 indicates that the younger a person is below the age of 21 when entering their first union the higher risk to their later marital union stability. The negative impact is greater for those who went straight to marriage but the difference between union pathways seems to disappear by age 21 and the increased risk is also minimized and not significant.







Figure 8.10 - Interaction effects - for age at first union 10 years

	Divorced by year 5	Divorced by year 10
Former cohabitor	0.145	-0.190
	(1.05)	(-1.53)
Union21plus	-1.747***	-1.623***
	(-29.51)	(-24.19)
fmr cohab X union21plus	0.502***	0.597***
	(4.02)	(3.98)
_cons	-0.634***	-1.151***
	(-12.64)	(-20.59)
Ν	17,614	17,614

z statistics in parentheses p < 0.05, p < 0.01, p < 0.001

8.5 Findings

The logistic regression models produced a wealth of data for this project. The initial model was built using three blocks of data. The first block included the dependent variable of whether a marriage was still intact or whether a divorce had occurred by the 10th year of the total union and the independent variable of relationship pathway measured by a dummy code in which former cohabitors were coded "1" and non-cohabitors "0". The dependent variable at this point is not yet been filtered to drop cases that would be right censored because of those unions not beginning prior to the 10 year measurement. This will be done in the Wave models. These variables were strongly related with former cohabitors having an odds ratio of 1.39, p<.001 of being divorced at ten years compared to those who went straight into marriage. The second block included time and proportion variables. The proportion of people who were choosing cohabitation over marriage as their first union was entered followed by whether the union began before or after age 21. After this block was entered the main independent variable measuring relationship pathways increased in odds to 2.31, p<001. The proportion of former cohabitors to noncohabitors was strongly related to not being divorced. The higher the percentage of former cohabitors to non-cohabitors, the less likely the participant was to be to be divorced. Early unions were negatively related to marital stability with an odds ratio of .10, p<001. Earlier cohorts were less likely to be divorced at 10 years than later cohorts. The final block of the preliminary model included the control variables of ethnicity, sex and whether someone was born in a rural or urban location. These control variables brought the independent variables down slightly with an odds ratio

of 2.25, *p*<001. Only ethnicity was significant with *Whites* having a much greater likelihood of divorce compared to *non-whites* (2.41, *p*<001). All three blocks in the preliminary model were significant at the .001 level. Block one was $x^2(1) = 22.66$, *p*<001, block two $x^2(4) = 739.54$, *p*<001 and block three was $x^2(3) = 26.80$, *p*<001.

The preliminary model also showed that almost all the included variables for testing were significant as well (Table 8-22). A detailed breakdown of the variable means across all models is found in Table 8-23 consistent with the approach of Dush et al. (2003).

	Independent	Time &	Control
Divorce by Year 10	Variable	Frequency	
Former cohabitor	1.390***	2.321***	2.258***
	(4.76)	(10.33)	(9.84)
Proportion cohabiting		0.101***	0.113***
		(-13.72)	(-12.91)
Union formed => age 21		0.220***	0.225***
		(-24.50)	(-23.05)
Ethnicity = white			2.417**
			(5.04)
Sex = male			0.992
			(-0.12)
Rural/urban = rural			0.905
			(-1.71)
Ν	16,960	16,960	16,960

Table 8-22 - Preliminary mode	Table	8-22 -	Preliminary	model
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Odds ratios z statistics in parentheses p < 0.05, p < 0.01, p < 0.001

Although total length was not significant it was kept because it does add to future models. The main findings of the logistic regression will be presented by wave summary with a more detailed discussion of the implication of the findings across waves presented in the next chapter. Although several variables may no longer be significant or may become significant in one of the models, these changes are by themselves important pieces of information in understanding the cohabitation effect.

The strategy for the three wave models was to add the selection variables in blocks and then complete the model with the addition of the remaining control variables (ethnicity, gender and rural / urban birthplace). After doing so the odds ratios of the independent variable could be examined in relation to the base model and the other two wave models. This comparative strategy would also be applied to the time and frequency variables as well as the selection variables to confirm or reject the hypotheses stating the expected changing nature of these variables across time.

8.5.1 Wave A

Wave A panel data from the BPHS was collected in 1991 and is designed to capture when cohort 4 respondents would have been approximately 32-41 years of age. Cohort 4 represents the birth cohort of those born between 1950 and 1959 and is the cohort who embraced the "new cohabitation" in a strong way. The initial discussion of Wave A will be the impact of the time variant variables on the coefficients found in the preliminary model already presented. Then a discussion will be presented on the effects of adding the block of Wave A variables before discussing the implications of those individual variable coefficients.

With the addition of the Cohort 4 Wave A variables the independent variable of relationship pathway was reduced in strength from the preliminary model (OR 2.10, p<05 indicating that former cohabitors are about twice as likely to be divorced

by ten years of their union's start compared to those who did not cohabit first. As the proportion of cohabitors increased, the likelihood of being divorced at 10 years decreased (OR .08, p<001). Early unions, or unions started before age 21, were also less likely to survive to 10 years (OR .46, p<001). In Wave A, the interaction terms were not significant. The block of selection variables was significant when added to the model $x^2(4) = 52.10$, p<001. The religious attendance variable had an odds ratio below 1 (OR .848, p<001). Being responsible for a child under age 16 suggests a decrease in the likelihood of divorce (OR .99) but the finding was not statistically significant. The possession of traditional family values lowered the likelihood of divorce (OR .89, p<001). The education variable indicated that with increased education came increased odds of being divorced at 10 years (OR 1.09, p<.001). The control variables of ethnicity, gender and rural/urban birth place were not significant in the Wave A model. Overall the Wave A model provides a baseline to compare the other two models with.

8.5.2 Wave I

Wave I panel data from the BPHS were collected in 2000 when cohort 5 respondents would have been approximately 31-40 years of age. The block of selection variables was once again significant when added to the model $x^2(4) = 69.03$, *p*<001 and all four variables in the block were significant individually as well. In the full Wave model the independent variable of relationship pathway was elevated from the previous model with an odds ratio of 2.37 *p*<001. The proportion of cohabitors was not statistically significant but it should be noted that interaction terms with former cohabitors was (OR 0.10, *p*<001). Since the proportion of

cohabitors interaction term was significant the interpretation of their coefficients requires a more detailed explanation that is taken care of in the interaction variable creation section above. Early unions pointed to greater risk of later divorce for Wave I respondents. Unions that started after age 21 were over slightly less than half as likely to be divorced compared to the early unions (OR 0.54, p<001).

All of the selection variables were significant. As frequency of religious attendance increases, the odds of being divorced at 10 years decrease (OR 0.87, p<001. The more respondents agreed with the importance of two parent families, the greater the odds of staying together (OR 0.80, p<001). Being responsible for a child under age 16 continued to decrease the odds of divorce (OR 0.79, p<05). Greater levels of education were also more likely to be divorced (OR 1.06, p<001). While both ethnicity and place of birth remained insignificant in the Wave I model, the gender variable indicated that males had an elevated risk of divorce (OR 01.31, p<01).

8.5.3 Wave R

Wave R panel data from the BPHS was collected in 2009 when cohort 6 respondents would have been approximately 31-40 years of age. The block of selection variables was once again significant when added to the model $x^2(4) =$ 64.17, *p*<001 with three of the four variables in the block being individually significant as well.

The independent variable coded for relationship pathways has an odds ratio (OR 2.15, p<.01) showing the relationship between union pathway and risk of divorce has remained relatively strong through the three waves and remained

statistically significant as well. The proportion of cohabitors was significant (OR 0.841, p<01) but the interaction term between relationship type and proportion of cohabitors was also significant and as a result is what should be the focus (OR 0.11, p<001).

Religious attendance in Wave R increases in odds of not being divorced at 10 years when compared to the previous measure (OR 0.81, p<001). Having a child under 16 is not significant in this model but agreeing with traditional family values is and continues to be negative related to divorce (OR 0.79, p<001). Higher education continues to point to a greater likelihood of being divorced with an odds ratio of 1.07, p<05. The block of control variables was not significant, nor were any of the individual variables. Being born in a rural environment did approach significance (OR 1.17, p<052) suggesting an increased risk of divorce for those who come from non-urban settings.

The three wave models, Wave A, Wave I and Wave R were looked at using a nested regression strategy. The final model results have been briefly described here individually. The focus of the analysis is to now look at the three waves in relationship to the base model and each other in order to better describe any change that may be occurring in the outcome variable as well as the time varying mechanisms selected to be examined in more detail. The cross wave comparisons will now be presented.

8.5.4 Cross Wave comparisons

Table 8-25 presents the cohort and wave data to allow for convenient analysis of change over time.

8.5.5 Hypotheses

Hypothesis three suggested that the most salient mechanisms accounting for the cohabitation effect will emerge as the overall effect diminishes and cohabitation becomes more normative. Several hypotheses in the form of propositional statements were presented. The following section will review the outcome of the data in relationship to the proposed expectation in Table 8-24.

	Way	/e A	Wa	ve l	Wav	/e R
	19	91	20	00	20	09
	Non-	Former	Non-	Former	Non-	Former
	cohabit	cohabit	cohabit	cohabit	cohabit	cohabit
Variable	М	М	М	М	M	М
Divorce by year 10 (Yes)	.130	.255	.174	.238	.179	.152
Cohabiting/Marriage	.073	.157	.113	.302	.155	.418
proportion**	(.001)	(.005)	(.006)	(.005)	(.003)	(.006)
proportion	(1001)	(1000)	(1000)	(1000)	(1000)	(1000)
Union formed >= age 21 (Yes)	.774	.701	.765	.717	.774	.793
union21 X fmr_cohab	0	.701	0	.717	0	.793
pro_cohab X fmr_cohab	0	.157	0	.302	0	.418
Male (Yes)	.420	.455	.404	.443	.397	.450
Rural/urban- <i>(Rural)</i>	.310	.299	.340	.305	.370	.327
Ethnicity (White)	.980	.944	.998	.977	.971	.978
Education	2 635	3 250	2 920	3 629	3 180	3 923
	(.024)	(.105)	(.026)	(.060)	(.029)	(.050)
Traditional family values	3.121	2.832	3.00	2.670	2.882	2.690
,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,, ,,	(.016)	(.064)	(.016)	(.038)	(.017)	(.031)
Religious attendance	1.982	1.704	1.744	1.445	1.755	1.420
č	(.016)	(.051)	(.016)	(.028)	(.018)	(.024)
Child under 16 (Yes)	.161	.358	.132	.399	.090	.330
	(.005)	(.024)	(.005)	(.017)	(.005)	(.014)
N	4584	341	4641	840	3678	1162

Table 8-23 - *Means, SD & N in wave models

* (SD) Proportions for dichotomous variables, means for all others ** Ratio of first cohabitors to first marriages assigned to all members of cohort

Table 8-24 - Review of variable level hypotheses

Variable	Hypothesis
Relationship	Former cohabitors will have higher odds of union dissolution than
Pathway	those who go straight to marriage but these odds will decline from
	earlier waves to later waves
Age at First	Unions that take place early (before age 21) will be less stable than
Union	those entered into after age 21. This will be stable from early to later
	waves.
Dispersion	Union stability will increase as the percentage of the population
	choosing cohabitation as their first union approaches that of the
	straight to marriage group. Stability will increase from early to later
	waves.
Religion	Religion will be positively related to martial stability and will
	increase in strength across time from early to later waves.
Education	Education will be positively associated with marital stability but will
	diminish in strength from early to later waves.
Traditional family	More traditional family values will be associated with greater marital
views	stability and remain stable across waves
Dependent Child	The presence of a dependent child under aged 12 and under will act
	as a deterrent to divorce and therefore be strongly related to union
	stability across waves.
Ethnicity	Ethnicities that embrace a more traditional view of marriage will be less
	associated with divorce. It is hypothesized that non-white groups will
	be more conservative and have greater union stability. Time will not
	affect this based on the assumption that new immigrants and ethnic
	enclaves will offset enculturation.
Region	Those born in rural areas will be assumed to have been raised in rural
	areas and as a result would have more stable relationships than urban
	and this relationship would be stable throughout waves.

	(1)	(1)	(2)	(3)
	Base	Wave A	Wave I	Wave R
Divorce by year 10	Model	1991	2000	2009
, , , , , , , , , , , , , , , , , , ,				
Independent Variable				
Former cohabitor	3.450 ^{***}	2.103 [*]	2.372***	2.154**
	(6.80)	(1.96)	(3.39)	(3.01)
Time & frequency				
Proportion cohabiting	0.237***	2.552	1.083	0.410 ^{**}
	(-7.68)	(1.54)	(0.22)	(-2.79)
	***	***	***	***
Union formed => age 21	0.206	0.479	0.538	0.483
	(-22.26)	(-6.92)	(-6.77)	(-7.19)
Interaction Variables	**			
union21 X fmr_cohab	1.514	1.239	0.957	0.966
	(2.59)	(0.70)	(-0.22)	(-0.16)
pro ochob V fmr ochob	0 0070***	0 1 2 4		0.100***
	(6.54)	(127)	0.0930	0.109
Control Variables	(-0.54)	(-1.57)	(-3.72)	(-4.27)
Conder - male	0.087	1 213	1 311**	1 021
Gender - male	(-0.21)	(1.88)	(3.15)	(0.23)
	(-0.21)	(1.00)	(3.13)	(0.23)
Rural/urban - rural	0.907	1.014	1.114	1.170
	(-1.67)	(0.15)	(1.44)	(1.94)
	(/	(· · · ·	()
Ethnicity - white	2.574***	0.787	1.246	1.297
	(5.37)	(-0.92)	(0.85)	(0.91)
Selection Variables	. ,		. ,	
Education		1.090 ^{***}	1.059**	1.068 ^{**}
		(3.33)	(2.67)	(2.78)
		***	***	***
Traditional family values		0.802	0.789	0.787
		(-5.51)	(-6.66)	(-5.94)
Polizious ottendence		0.040***	0.966***	0 000***
Religious allendance		0.849	(2,74)	0.809
		(-3.61)	(-3.74)	(-5.00)
Dependent child under 16		0 987	0 792*	1 049
		(-0 10)	(-1 97)	(0,33)
		(0.10)	(1.07)	(0.00)
N	16960	4889	5481	4840

Table 8-25 - Logistic regression summary of odds of divorce at 10 years

Odds ratios; z statistics in parentheses p < 0.05, p < 0.01, p < 0.001

8.5.5.1 Relationship pathway

This variable is the main independent variable and the core of the cohabitation effect discussion. It was hypothesized based on the cohabitation effect that former cohabitors will have higher odds of divorce but due to diffusion theory, those odds would decline over time. The widespread adoption of cohabitation began in the latter half of the twentieth century. Figure 8.2 has already provided support for higher levels of divorce for former cohabitors. It also shows the general downward trend of those levels. Table 8-25 provides an overview of the logistic regression models that used the event of divorce at 10 years as the dependent variable. In the full wave models the first variable entered was relationship pathways coded "1" for former cohabitors and "0" for those who went straight to marriage. Wave A showed an odds ratio of 2.10, p.<05. This valued increased in Wave I to OR 2.37, p<.001 but then declined slightly to OR 2.15, p<.001 in Wave R. These results provide strong support for the continuity and stability of a cohabitation effect across all three waves even after controlling for proportion of cohabitors and interaction effects. The base model began with an odds ratio of 3.450, p<.001. The introduction of the wave data decreased the explanatory power showing that individual characteristics were explaining some of the increased odds of divorce for former cohabitors. A review of the base model shows that the relationship between the dependent variable and relationship pathway variable without any controls was OR 1.38, p<.001. This suggests that the odds increase of divorce by 10 years for former cohabitors is modestly higher for former cohabitors in comparison to non-cohabitors. This modest relationship is not revealing the importance of age at marriage, proportion of cohabitors or the four selection variables used in the model on the basis of their

identification in previous literature. The interaction effect of the proportion of cohabitors also provides more detailed influences on the relationship between the two main variables. As shown in Figure 8.8 the interaction between the variables measuring relationship pathways and the event of divorce at 10 years shows that at a cohabitation / marriage ratio at one standard deviation (47%) above the mean of the proportion variable that the interaction is not significant. Further calculations showed that the interaction is crossing over and becomes significant again at 2 standard deviations above the mean (71%) (results not reported). Cohort 6 corresponds to a cohabitation / marriage ratio of .70 or just below the second standard deviation value. This would lend greater support to the trend that future cohorts would be expected to have inverted odds. That would suggest former cohabitors experience less odds of divorce at 10 years but the data does not bear this out.

8.5.6 **Proportion cohabiting**

The proportion of people cohabiting in any given cohort has been used to help explain the cohabitation effect by a number of researchers. As the diffusion of cohabitation makes its way through a population the negative implications of premarital cohabitation is expected to diminish. The total number of first cohabitors in reference to the total number of first non-cohabitors produces a cohabitation proportion per cohort. This variable was significant across all three waves of data when no other variables were included (Table 8-26). The values across the wave models provided general support for the hypothesis. The odds decrease across

Wave models in a consistent pattern from Wave A (2.55, ns) to Wave I (1.08, ns) to

(0.41, *p*<.01) in Wave R.

	-			
Divorce by Year	Wave A	Wave I	Wave R	
10 (1) = yes	1991	2000	2009	
Proportion	52.407***	2.989***	0.596***	
cohabiting	(11.81)	(5.85)	(-3.57)	
Ν	6509	8033	11400	
Odda Pation: z atati	ation in paranthagon			

Table 8-26 - Proportion cohabiting

Odds Ratios; z statistics in parentheses p < 0.05, p < 0.01, p < 0.001

The results are generally consistent across the cohorts and demonstrate a strong relationship between the percent of those cohabiting as first union the odds of divorce by 10 years. This was as expected. Wave A respondents would be primarily made up of older cohorts with lower cohabitation proportions. The interaction of the proportion cohabiting variable with the divorced at 10 years variable shows a steeper slope for former cohabitors than those who went straight to marriage. The interaction term is significant in Wave R of the full model but that doesn't fully capture the change across different proportions of cohabitation. Referring to the changes in action by standard deviation again it can be shown that the two pathways both have negative slopes but the former cohabitor pathway is steeper. When the proportion of cohabitors is lower, there are increased odds of divorce for former cohabitors compared to those who went straight to marriage. As the proportion of cohabitors grows, the odds of divorce decrease more rapidly for the former cohabitor group and then reverse in their favour. The three waves of data under study capture the beginning of that convergence.

8.5.7 Ages at first union

Early union formation has been frequently connected in the literature with greater relationship dissolution regardless of the union formation pathway. Early unions experience greater instability than later unions decrease in stability. This study used the age of 21 to create a dichotomous variable measuring age at first union rather than using a continuous scale of age. This variable was statistically significant for all three waves. All three waves had a strong relationship between age and later marital stability. Wave A had an odds ratio of 0.48, p<.001. The odds in Wave I were up slightly at 0.54, p<.001) then stabilized in Wave R (0.48, p<.001). These values indicate a strong penalty for early unions. The stability of the three waves in conjunction with the same stability in the value of the pathway variable suggests that early union penalties are affecting both union pathway types in a similar fashion. Earlier cohorts would have seen a greater penalty for younger marriages than younger cohabitation. This difference seems to be declining and indicative of a later marriage norm and early unions of both former cohabitors and non-cohabitors being less stable. The interaction variable created from the age at union and former cohabitors variables was only significant in the base model. An examination of the interaction plot (Figure 8.10) shows that earlier marriages seem less stable than early cohabitation. This information seems counter intuitive since early marriage would more difficult to enter than early cohabitations. The implications of these findings will be dealt with in the next chapter when the entering of cohabiting relationships at earlier ages is discussed.

8.5.7.1 Interaction variables

The results of these variables have been discussed in both the variable creation section of the paper as well as in the sections discussing individual variables included in the interaction.

8.5.7.2 Religious attendance

The religiosity measure was determined by one single question that asked respondents how often they attended religious services. The variable was recoded to reflect a four category ascending structure. All three waves were significant and reveal a consistent pattern of decreased odds of divorce for those who attend a religious service more frequently (Wave A OR 0.85, p<.001; Wave I OR 0.87, p<.001; Wave R OR 0.81, p<.001). In fact the final wave, Wave R had the strongest result of the three waves. This pattern suggests a continuing importance in religious behaviour being associated with reduced risk of later marital dissolution. This strong trend highlights the importance of religiosity in marital stability but also across the divergent pathways of union formation. As predicted the religiosity variable was significant across time and increased slightly in predictive strength as well. This demonstrates that an increase in religiosity is related to a decrease in marital instability. Since the pathway variable remained stable during the same time, the conclusion is that religiosity is an area which continues to identify those marrying straightaway compared to those choosing to cohabit prior to marriage. This premise is further explained by looking at the relationship between religiosity and union pathway controlling for cohort. Table 8-27 shows a summary of the relationship between religiosity and former cohabitors.

Union Pathway	Wave A	Wave I	Wave R			
(1) = fmr cohab	1991	2000	2009			
Religiosity	0.700 ^{***}	0.717 ^{***}	0.693 ^{***}			
	(-4.41)	(-7.86)	(-9.75)			
Ν	5075	5652	5068			
Odde Patios: z statistics in parentheses						

Table 8-27 - Religious attendance

ids Ratios; z statistics in parentheses

p < 0.05, *p* < 0.01, *p* < 0.001

The relationship between respondents with an increased level of religious attendance and selection of union formation pathway is also very stable across the waves (Wave A (OR .700, p<.001), Wave I (OR .717, p<.001) and Wave R (OR .693, p<.001)). The combination of stability across this relationship in combination with the stability of the cohabitation effect across the same time would indicate that religion continues to distinguish who cohabits prior to marriage and who does not.

8.5.7.3 Dependent child under 16 years of age

Having to provide for a dependent child was expected to be correlated with greater marital stability. The presence of children in a marital relationship has been shown to act as a buffer to divorce. As a result this value was expected to benefit both union formation pathways. The hypothesis had limited supported in the data. The odds ratios of Wave A and Wave R were both not statistically significant and their odds ratios were in opposite direction of effect. Wave I was statistically significant and in support of the hypothesis. The value does show a decrease in the odds of divorce (OR .792, p < .01). In calculations not reported, the presence of a child under 12 years of age did not provide any varied information from the variable used in the model. Wave I does show that caring for a child under the age of 16 does provide some barrier to later divorce. While the results may not be as fully

predicted, a closer examination of the data indicated a dramatic gender disparity in the respondents across all three waves of data. This disparity was presented in Table 8-16 and Table 8-17. A further breakdown gender and childcare was prepared and presented in Table 8-28. The lack of a clear explanation about the ambiguity of the dependent child findings may have to do with the breakdown of who indicated being childcare givers. Two patterns emerge. The first is the clear gender division with women almost exclusively being the ones to say they are responsible for looking after the child. The second pattern is the disproportionate number of former cohabitors who are looking after children in relationship to non-cohabitors. A clearer explanation may be simply that former cohabitors report caring for a child under 16 much more than those who go straight to marriage.

	Responsible for a child under 16 (1=ves 0=no)		
	Yes	No	Cumulative
Wave R			
married			
male	7	1,632	1,639
female	361	2,121	2,482
former cohabitor			
male	5	582	587
female	416	295	711
Wave I			
married			
male	21	1,942	1,963
female	616	2,279	2,895
former cohabitor			
male	12	380	392
female	335	148	483
Wave A			
married			
male	20	1,965	1,985
female	730	2,008	2,738
former cohabitor			
male	6	154	160
female	121	71	192
Ν	2,650	13,577	16,227

 Table 8-28 - Responsible for a child under 16

8.5.8 Family and structural ideals

One question was included in the model to gauge the influence of family structure ideals on the cohabitation effect. The question asked whether the respondent thought single parenthood was as good as two parents. This variable was significant across all three time points. Those who thought that single parents are as good as couples were more likely to be divorced at year 10. The values for each cohort indicate a slightly increasing strength of predicting divorce. Wave A had an odds ratio of .802, p<.001), Wave I (OR .789, p<.001) and Wave R had and odds ratio of .787, p<.001)). This pattern is similar to the one described regarding religiosity. The strength of traditional family values increases in predicting martial stability while the relationship pathway remains stable in predicting the relationship outcome at 10 years. A closer examination of this variables relationship to the relationship pathways helps to add clarity to this process.

Table 8-29 shows a significant negative correlation of traditional family values with being a former cohabitor. The strength of this relationship decreases slightly from Wave A (OR .792, p<.001) to Wave I (OR .745, p<.001) and then increases between Wave I and Wave R (OR .845, p<.001). The interpretation of this pattern is similar to that of religion. Those who identify more with traditional family values are less likely to divorce and less likely to cohabit before marriage as well. This variable touches on a very important aspect of changing family structure. It does not take into account the timing of the survey question and the life course events of the respondent. Being a single parent is likely to influence the response.

Union Pathway	Wave A	Wave I	Wave R
(1) = fmr cohab	1991	2000	2009
Single parent	0.792***	0.745***	0.845***
.	(-4.62)	(-8.31)	(-5.36)
Ν	4950	5557	5208
Odds Ratios: z statis	stics in parentheses		

Table 8-29 - Traditional family values

p < 0.05, p < 0.01, p < 0.001

8.5.8.1 Education

Education was measured using ISCED levels. It was predicted that higher education would be correlated with greater martial stability but as the proportion of cohabitors increased, the strength of education on marital stability would decrease. The education variable was significant across all three time points yet not the direction predicted. The odds ratios were fairly stable across all three models. Wave A had an odds ratio of 1.090, p<.001), Wave I (OR 1.059, p<.001) and Wave R had an odds ratio of 1.068, p<.001)). The data suggest that higher education leads to greater marital instability. Since the values are fairly stable across the waves, this suggests that higher levels of education were initially more associated with marital instability among those who went straight to marriage compared to those who cohabited first but that gap is narrowing. The fact that the education odds ratios remained stable while the cohabitation effect did as well suggests that education is no longer a distinguishing factor in who cohabits and indicates that higher educated people are more likely to cohabit now than in the past. Table 8-30 shows the direct relationship between education level and increased odds of being a former cohabitor.

Union Pathway $(1) = fmr cohab$	Wave A	Wave I	Wave R
	1991	2000	2009
Education	1.23 ^{***}	1.25 ^{***}	1.30 ^{***}
Level	(6.53)	(10.76)	(12.82)
N Odda Patiaa: zatatiati	5075	5658	5068

Table 8-30 – Education

p < 0.05, p < 0.01, p < 0.01

8.5.8.2 Ethnicity

It was hypothesized that those respondents who identified themselves as non-white would represent more traditional cultures. The data provide mixed results. It was expected that traditional cultures would be less likely to embrace cohabitation and less tolerant of divorce. The variable used in this study was less than ideal with a dominant number of Whites to other groups that the other groups had to be consolidated into one category (other). As a result the findings associated with ethnicity should be viewed with caution. That being said, some important information materialized. The ethnicity measure was significant in the base model OR 2.57, p<.001 but was not significant in any of the wave models. This may be due to the large number of people indicating their ethnicity as White and the small number of cases that are distributed throughout seven other categories that were coded as other. Although not significant, the odds ratio values do show an interesting trend across time that at least should be mentioned. In Wave A the odds ratio for ethnicity indicated that Whites had greater marital stability than non-whites. In Wave I the relationship reverses and by Wave R the reversed relationship has strengthened but is still not approaching significance.

8.5.8.3 Rural and urban

The heterogeneity of cohabitors has been well documented. Several countries illustrate the diverse patterns within their own populations such as Canada & New Zealand. Since rural living is more associated with traditional values, it was predicted that rural birthplace (assuming time constant) would be less likely to cohabit and have greater marital stability. The difference between being born in a rural area verses an urban area was not found to be significant across any of the time points. This may be because of the construction of the variable which was hand coded according to place of birth or it may be the result of consolidating large metropolitan centers as urban and all other locations as rural. Another explanation could be the crudeness of this measure which assumes stability of birthplace through early socialization. A final explanation could be the diffusion of ideals and practices such as cohabitation are not that distinct between rural and urban center populations.

8.5.8.4 Gender

The gender variable was significant only in Wave I (OR 1.31, p<.01). This indicated that males were more likely to be divorced by the 10th anniversary of the beginning of their union than were females. The response rates across waves provided a generally consistent gender division with women slightly higher than men. The notable exception was the child care variable. The data support the idea that men and women experienced union formation pathways in a similar fashion.

8.6 Conclusions

8.6.1 Main independent variable

The dependent variable was measured by whether a person was divorced or not at the 10th anniversary of the beginning of their union. That union may have begun with a marriage or it may have begun with a cohabiting union that was later converted into a marriage. These two pathways represent the main independent variable and form the basis of the cohabitation effect. Findings showed that former cohabitant have greater marital instability than those who do not cohabit prior to marriage. All three wave measures were statistically significant after all control and selection variables were entered. The interpretation of these findings is straightforward. The relationship between the dependent and main independent variable were significant in the base models which included time and frequency measures. If the cohabitation effect was spurious then the inclusion of the variables previously identified to be correlated with the cohabitation effect should have reversed or reduced the relationship between union pathway and later marital instability. This was not the case. The cohabitation effect remain strong and stable across the three waves suggesting an increased risk of marital dissolution by the 10 years of the unions start. The odds ratio of 2:1 means the former cohabitors were twice as likely to see their later marriage end in divorce within 10 years of forming the union. This finding points to a continuing cohabitation effect in light of cohabitation gaining greater social normativeness. The stable and significant pattern was suggested by Liefbroer and Dourleijn (2006) when they felt that a residual difference between non-cohabitors and former cohabitors would exist even

at the nadir of cohabitation adoption. This residual difference may be attributed to other explanatory variables not included in the model or may lend support to the experience explanation for the cohabitation effect.

8.6.2 Time and frequency variables

8.6.2.1 Proportion cohabiting

The proportion of people choosing to cohabit as their first union in comparison to those who choose to marry as their first union is a good measure of diffusion. It was expected that with each wave the proportion of cohabitors would be negatively related to the odds of divorcing because the more normative the event was, the more socially acceptable it would be and the greater adoption would be expected. When the population is evenly divided between union pathways it is assumed that any selection effect would be eliminated. Results discussed in the previous section seem to contradict this expectation. Yet the examination of the interaction variable that was created by the product of the proportion of cohabitors and the relationship pathway variable showed it to be significant in the base model as well as Waves I and R. The difficulty of interpreting interaction effects with binomial variables is addressed with reference to figures Figure 8.8 in which the crossover pattern is visible as the percentage of cohabitors approaches 1. The surprising finding of this variable is the relative stability of the relationship between marital instability and the union formation pathway even while the interaction of cohabitation proportions and relationship pathway is getting stronger. The limited portion of recent time that this study is able to incorporate makes it difficult to see any extensive support for increased odds of union stability for former cohabitors.
8.6.2.2 Age at first union

The variable constructed to measure the age at first union looked at the impact of beginning the union before or after the age of 21. This method allowed the influence of early unions to capture in the same way non-early unions could. The metrics before and after age 21 are not equal, nor or the implication of beginning a union at 17 verses 24 years of age. This variable was significant across all three waves with very strong z values indicating very high significance. The odds ratios also showed that unions that began prior to age 21 are much more likely to be divorced at the 10 year point. This relationship is stable through the second and third time points. The strong relationship with marital stability was predicted and it was predicted that the values would remain stable. This was the case between time points 1, 2 and 3. The interaction variable indicates that earlier relationships were less stable for those who began with marriage rather than cohabitation. With the passing of time, this relationship reversed, indicating that early cohabitors may be more likely now to dissolve a later marriage than non-cohabitors. The interaction term created from the union formation pathway variable and whether a union began before or after age 21 was only significant in the base model but not in any of the wave models. Figure 8.10 illustrates that that the relationship between the two terms is evident but the slope of either variable is not as strong as the interaction term that included the proportion of cohabitors. This lack of slope may be the reason for the absence of significance in the interaction term.

The best interpretation of this pattern may be that as cohabitation becomes easier to enter, it will be entered earlier and more casually than when it was less normative. When cohabitation as a practice was less normative, cohabitation would

have been less accessible and harder to enter without significant social sanctions. This would have acted as a barrier to casually entered relationships. This conclusion must be balanced with the knowledge that as cohabitation becomes more normative, there would be an expectation that this would reduce any cohabitation effect. What this combination of factors may lead to is a new and distinct set of selection effects that would differentiate those who casually enter a union in contrast to those who have a more distinct purpose for cohabiting.

8.6.3 Interaction variables

The interaction variables did provide more detail to what was happening across time. Figure 8.8 and Figure 8.10 provide the best depiction of what is going on between the strongest variables in the model. The influence of time both in the age at first union and the time across cohorts in which the proportion of cohabitor is interacting with, is very important to understand. Time affects both relationship pathways differently. The visual depiction of the pathways intersecting and then reversing relationship is a key to understanding the changing nature of the mechanisms involved in the cohabitation effect. The first interaction term, proportion X relationship pathway, shows former cohabitors with much higher odds of divorce at 10 years than non-cohabitors. This is when the proportion of cohabitors is very low but as the proportion increases, both pathways experience less divorce and former cohabitors benefit more from this transition until the pathways converge and cross over. The second interaction term, age at first union X relationship pathway, shows that the younger the age at which the union is formed, the greater odds of later divorce. This is more pronounced for non-cohabitors rather than former

cohabitors. As the age at first union approaches 21 years and above, the pathways intersect and former cohabitors now demonstrate an increased likelihood of later divorce.

8.6.4 Selection variables

8.6.4.1 Religiosity

Religiosity has been a variable of interest around the study of cohabitation since its inception. Strong cross religious sanctions of non-marital sexuality creates a nexus of conflict between religion and the changing patterns and norms surrounding cohabitation. The data from this project show a strong and stable influence of religion and selecting those who experience greater marital stability and less prevalence of cohabitation. This section of the project set out to see how certain mechanisms associated with the cohabitation effect changed over time. The religiosity variable measured by attendance frequency, suggests that over time the relationship between union pathways and religiosity remains stable. The relationship between religiosity and marital stability provides strong support for selection explanations of the cohabitation effect. This finding sheds light on what explanatory mechanisms are behind part of the cohabitation effect and what might begin to become more appropriately called the marriage effect.

8.6.4.2 Dependent children

Having a dependent child under the age of 16 was expected to provide stability to unions regardless of the union pathways involved. The data provide mixed findings for this hypothesis. Only Wave I data showed a significant result and

one that was consistent with the hypothesis. Wave I respondents indicated that caring for a child age 16 and under did act as a barrier to later marital instability. Wave A and Wave R data were not significant and was mixed in the direction of the Odds ratio. One possible explanation could be the legislative changes that made divorce easier to obtain. In 1969 no "fault" divorces could be obtained after 2 years (or 5 years if only one partner requested) of separation and could also be handled in the local county court rather than the High Court in London. The second change took place in 1984 when the restriction on divorce for marriages less than 3 years was lowered to 1 year. The main point is that the presence of children didn't seem to act as a strong barrier to divorce during this time period.

The explanation of these results may also simply be the fact that former cohabitors reported a much higher likelihood of caring for a child under 16 and since these relationships are less stable during this time period, the interpretation becomes clearer.

8.6.4.3 Traditional family values

Traditional family values were gauged by one question. They were based on the respondent's agreement with idea of whether single parents are as good as two parent families. It was expected that those with greater agreement with the idea that single parent families are as good as two parent families, would have a higher correlation with increased odds of being divorced. Traditional family values were positively correlated with greater marital stability across time with the strength of that relationship also increasing in each successive time point measure. Traditional family values were shown, like religiosity, to increase in predictive strength at the

same time the relationship between marital stability and union pathway was also stable. This provided evidence for the emergence of traditional family values as a selector of those who marry without prior cohabitation.

8.6.4.4 Education

Education was positively related to later marital instability. The interesting fact about the measure was its stability across time. The odds ratios are quite similar across all three waves (1.090, *p*<001, 1.059, *p*<01, 1.068, *p*<01). Over the twenty seven year period the change in odds represents a margin of less than 1.5% change. Wave A represents the union formation time when the leading edge of the hippie movement and the sexual revolution of the late 60s and early 70s was taking place. This generation began to adopt the practice of cohabitation in large numbers and represents a time in which cohabitation moved from a small group who were typified as being socially disadvantaged, to being accepted and practised by the booming population of young adults who were from more advantaged backgrounds and who were more highly educated. The stability of the measure in combination with the stability between union pathway and martial stability also provides support for this demographic shift.

8.6.5 Control variables

8.6.5.1 Ethnicity

Participants from more traditional ethnic backgrounds were expected to have greater relationship stability because of the perceived association with more conservative views of marriage. Although the ethnic variable was significant in the

base model (OR 2.574, *p*<.001) it was not for any of the waves. The data highlight that those who identify as *White*, have increased instability of their marriages after 10 years from the start of their union. This ethnic measure disappears with the inclusion of the selection variables which indicates that the relationship between ethnicity and later marital instability is being influenced by education, family values, religiosity, guardianship or some combination of these variables. The minimal strength of the values may be a lack of weighting of the data, especially with so few non-whites and it may be indicative of the fact that factors other than ethnicity are at work influencing the relationship status.

8.6.5.2 Rural /urban

The rural / urban variable, like the ethnicity variable provided little additional explanation to the models and was dropped. This was the case even before the selection variables began to be added. It was expected that those born in centers smaller than 10,000 people may be less likely to embrace cohabitation and also exhibit greater marital stability. The variable did demonstrate a trend toward supporting this prediction but the variables never achieved significance and as a result cannot be interpreted with any certainty.

8.6.5.3 Gender

The base model indicated very little difference between males and females in this study although the proportion of females to males was slightly higher (46% to 54% - in the reduced model of 17, 614. The sex variable was also dropped early in the model building because of its lack of significance and inability to add further explanatory power to the models. Distribution among Wave respondents was also

similar. The gender variable was significant in Wave I with males showing a slightly elevated odds of later divorce than women (OR 1.31, p<.001). The one aberration of general symmetry uncovered was the very small number of men who indicated that they are responsible for a child 16 or under. Of the 2,650 respondents who indicated they were responsible for a child of that age only 71 were male and the rest were female.

Generally the data support the hypotheses presented. In the end the most salient variables were the proportion of cohabitor, age at first union , length of the total union, religion, traditional family values and education. Some of these variables gained strength over the three time periods, some lost strength and some maintained stability across time. Regardless of their movement or lack thereof, each contributes to our knowledge of the mechanisms involved in explaining the details of the cohabitation effect. The differences between the two union formation pathways may have diminished but the strength of the significant variables was most noticeable across time, giving credibility to the emergence of the mechanisms at work behind any selection or cohabitation effect.

Chapter 9 : Summary

9.1 Synthesis

This project began with the goal of untangling the conflicting research regarding the cohabitation effect. Findings have been less than consistent about the negative influence that premarital cohabitation has on later marital stability. The early body of research was almost universal in the latter's negative effect of cohabitation on marital stability. There was some isolated research from the 80s and 90s that called into question these findings but it was not until the 2000s that mounting evidence began to show another side of the research. Some European and Australian researchers have provided support for the idea that not only has the cohabitation effect disappeared but those who don't cohabit are now the ones beginning to suffer higher marital instability.

The cohabitation effect has received a lot of attention in the last quarter of the 20th century and continues to be the focus of research in the early 21st century. The relationship between premarital cohabitation and later marital instability has been seen as one of the main arguments for those who oppose cohabitation. For those who are proponents of it, the cohabitation effect is a period anomaly that must be explained in order to address the detractors of this type of union formation pattern. Those that see cohabitation as a stage in the life course that more often than not leads to marriage want to understand the importance of timing, frequency and sequencing in order to enhance those seeking to screen out less desirable marriage partners. The gradual movement from being single to becoming cohabitants without much planning or foresight is a concern for some researchers. This leads to a closer

examination of intention, attitudes and resultant outcomes of cohabitors and adults considering cohabitation. All these lenses and more are used to try to understand and explain the cohabitation effect.

To briefly reiterate, this research project sought to explore the conflicting nature of research that on the one hand seems to be indicating that as cohabitation becomes more widely adopted, the less negative influence it will have on later marital stability. On the other hand there continues to be a body of research that highlights the continuing observation of a cohabitation effect. This research project has employed a nationally representative longitudinal data set that has recorded the union formation histories across the 20th century. In doing so, the project set out to address three questions.

- Is there evidence of a cohabitation effect (premarital cohabitation correlated to higher marital instability) across a large enough time spend to demonstrate that it is not just population variation?
- 2) Does the cohabitation effect vary across time and if so in what way?
- 3) If the data support a cohabitation effect and that effect varies across time, what potential independent variables emerge or decrease in explanatory power across that change?

This concluding chapter will begin with an overview of the main explanations of the cohabitation effect and then use the findings from this research project to present a historical contextual view of the cohabitation effect from a longitudinal perspective. It will then propose an alternative conceptualization of the cohabitation effect and a more nuanced understanding of the mechanisms that have and currently are at work in the relevant union formation pathways. The chapter will highlight the limitations of the project before concluding with a focus on its important original contribution to the body of research and potential fruitful areas of research and study in the future.

9.1.1 Diffusion

The process of social change is a topic of interest to all social scientists. How does a group of people change from engaging in one form of behavior to another? The adoption of cohabitation as either a stage in a union formation or as a standalone union type has been an important 20th century social issue. It affects the family in areas of fertility and kinship. It goes against millennia old tradition and continues to create and define new boundaries of legitimate sexual relationships, partnership and caregiving units. How did an aberrant behavior confined to a small segment of socially marginalized people become the normative first union choice for the majority of the Western population in less than 50 years? How did we move from, in the words of Kiernan (2001), the old cohabitation to the new cohabitation? Explanations abound. One line of reasoning is that the rise of the Industrial Revolution severed traditionally strong extended family structure systems, which resulted in smaller more mobile families which then contributed to an increased emphasis on the individual. With smaller families there was also a kinship restructuring. The family name was no longer as important as personal actualization. Inheritance rights and traditions were no longer governing union formation behaviors. Dowries and Bride Prices became less and less important in the selection of a mate and the importance of creating heirs. The geopolitical perfect storm of the

1950s in which the world was recovering from global conflict and economic depression leading a temporary retrenchment of traditional gender division of labour led to increased fertility and to a bulge in the population in the developed world creating a powerful cohort with political and social clout. The rising percentage of first males and then females in extended education delayed permanent unions but with the advent of reliable female controlled contraceptives, the ability to regulate fertility meant women could be sexually active, pursue education and careers without the fear of pregnancy interrupting their plans. Secularization and the loss of influence of religion and the authority of the family also led to less social outcry and sanctions against non-marital sexuality.

The acceptance of new emerging norms was seen as the legitimate release of behaviors and conduct that had been suppressed and restricted to the detriment of society. The youth who sought sexual freedom were also the ones who benefitted the most from it. As a result of the social liberalization of the 1960s and 1970s an influential social and political group adopted and legitimized non-marital cohabitation.

The cohabitation effect, according to this line of reasoning is the result of a social transition that is not yet complete. As larger segments of society adopt an acceptance for and practice of cohabitation, the more non-cohabitors will be viewed as deviant or non-normative. As more and more of the population accept and endorse the practice, the less selective it becomes and the more selective it becomes not to cohabit. The implication of this pattern is that the selectivity of who cohabits will be replaced by a selection effect of those who marry without cohabiting

as this group will become the new deviant group. Any negative effect for cohabiting prior to marriage would no longer be attributed to the formation pattern because the pattern would either no longer be negative or no longer be discernibly different from other union formation options. In other words, the cohabitation effect will have been a phenomenon that is no longer relevant.

There is a growing body of literature that provides support for this line of thinking. The major problem with this argument is that it is based on assumptions and conjecture that has not been fully tested. Hewitt and de Vaus (2009) and others (de Vaus et al., 2005; Kiernan, 2004; Schoen, 1992) have provided some support for this case but they do not have data in which the respondents have enough exposure to the risk of marriage and later divorce because of right censoring of their data. They make their assumptions based on data that seems to be indicating support for diffusion and may very well be proved with subsequent cohorts however to draw these conclusions with the existing data is speculative and premature. Liefbroer and Dourleijn (2006) have provided support for the diffusion explanation with their research on different European countries and their varied adoption rates of cohabitation. Their methodology provided a complete spectrum of cohabitation adoption rates and combined with divorce statistics they were able to conclude that those countries that had high rates or cohabitation or low rates of cohabitation were more likely to experience a cohabitation effect. The problem with this research is that it is predominantly cross sectional data with only one time period used or a dated limited time frame to make these conclusions. The research provides no insight into what demographic and union formation changes may have been or are taking place

in these countries. There is no evidence of transition across time in these countries. Since the diffusion explanation is based on sequential change over time, the author's conclusions are again speculative and beyond the scope of their own project

9.1.2 Sliding/deciding

Stanley et al. (2006) and Sassler (2004) have proposed that the more detrimental effects of premarital cohabitation are a result of the ambiguous nature that many couples enter their relationship. Building on earlier research by Teachman and Polonko (1990) about the absence of a cohabitation effect for those couples who only cohabited for shorter periods of time (under 6 months), Stanley hypothesized that these couples are primarily engaged couples who are already committed to one another and the idea of getting married. This is in stark contrast to the many couples who find themselves in cohabiting relationship without planning on doing so. The gradual breakdown of maintaining separate dwellings leads to a cohabiting couple who may then feel social pressure to eventually marry when they are not very suitable for one another. Stanley et al. (2006) see the cohabitation effect being the result of the lack of commitment to the relationship that often accompanies slipping into cohabitation. The effect is then the result of poorly matched or less committed partners who end up getting married because of the difficulty in stopping the momentum that has built up over the course of the union.

9.1.3 Institutionalization

Tied in with diffusion but focused more on the institution of marriage itself – Lauer and Yodanis (2010) challenge the assumption that with the rise of

cohabitation, non-marital fertility and high divorce rates that marriage as an institution is in decline. They examine the alternatives to marriage and assess the above mentioned concerns as indications of the strength and continuity of the marriage institution. Marriage continues to be practiced or desired by a majority of the population even though it may be entered later, exited more frequently or avoided temporarily. Marriage continues to provide something that the alternatives cannot yet replicate. These authors conclude that marriage is not in danger of being deinstitutionalized. After trying alternatives or delaying entry to marriage, most will eventually marry. The very nature of the rules and social regulations that make marriage what it is, continue to define it as an institution. That clarity remains, regardless of the paths to it, out of it or around it. This is exactly why it shapes the life courses of people regardless of whether they ever enter into marriage or not. In this perspective cohabitation is seen as an alternative to marriage and even though it may become more institutionalized and resemble marriage more and more, the reality remains embedded in the ideals and normative expectation associated with marriage and imitations will always be judged on their fidelity to the original.

9.1.4 Sequencing

Normative life course patterns have been shown to exert influence on individual agency. Dennis P Hogan (1978) documented that deviance from the normative life course patterns of education, employment and union formation may have greater negative marital stability outcomes than when the normative path is followed. Although researchers have questioned the value of studying normative pathways because of greater life course heterogeneity than in the past, support for

the importance of these pathways continues to be recognized (Brückner & Mayer, 2005). The cohabitation effect is explained as a result of going against the norm of the institution of marriage according to this perspective. This perspective is associated with the diffusion approach and would be related to the relative number of people who have ever cohabitated in relationship to those who had not. The case is made that the greater the uniformity of social pathways, the greater the potential penalty (in this case marital instability) for those who deviate from it. As cohabitation becomes a more normative stage of union formation, the fewer penalties that would be incurred. The sequence explanation would also hold for examination of multiple transition in and out of unions in the form of serial cohabitation of serial monogamy (Lichter & Qian, 2008).

9.1.5 Cohort/period/ age

Giele and Elder (1998) state that sociologists once wrestled with how to distinguish the effects of age (biological development), period (historical context) and cohort (socially shared experiences), but citing Rodgers (1982) they eventually gave up because they found all of the dimensions were perfectly correlated with one another. This led to more creative ways to tap into the effects of these three. Period could be linked to location in time, cohort was located with linked lives and age because of its association with individual development was linked to human agency. Giele and Elder (1998) conclude their introductory comments on age, cohort and period by emphasizing that life course research should seek to collect data on historical context (location) family and other social relationships (linked lives), subjective measures of health and wellbeing (human agency) and life histories

(timing) which is a fourth dimension they add. Seen from this perspective or understood from this approach, the cohabitation effect is the result of varying historical and social differences.

9.2 An Alternative Perspective

The concept of the cohabitation effect has been developed to describe the negative implications on marriage stability for those who choose to cohabit prior to marriage. The term was developed during the early study of this growing social phenomenon. The social climate during these early studies would be best described as lukewarm to the idea of cohabitating. It did not garner much attention or concern when it represented a small segment of the population that was already marginalized. When it began to be adopted in greater numbers and by a cross section of the population, social concern was also raised. The negative outcome of divorce was a readily available red flag for social conservatives to wave and something that social liberals had to address. As a result of this portrayal of cohabitation as a dangerous endeavor, the cohabitation effect gained traction in the literature. For the last 35 years the cohabitation effect construct has been used around the globe in research studies to explain later marital instability. This project sought to explore and identify the patterns of change over time in order to better understand the mechanisms behind the cohabitation effect.

As a result of this work, it seems appropriate to re-label the cohabitation effect. Cohabitation is a union state and of and by itself does not and cannot influence marital stability. Although this is self-evident and generally understood, the cohabitation effect label has been misleading and has helped obscure the real

components of the cohabitation effect. The proposal for a new conceptualization of what is going on with the cohabitation effect may be equivalent to the divorce literature that precedes it. In that literature, early works discussed the negative outcomes of divorce on children and the spouses involved. The lay reader began to focus on the state change or event rather than the process that proceeds and follows the divorce event. The debate ignored the underlying mechanisms at work. Divorce literature today is much more mature in the discussion of the event and understands that the real detrimental aspects of divorce are a result of mechanisms at work in the process of divorce. The cohabitation literature can learn from the divorce literature and this project aimed to add to that maturation by documenting the emergence and strength of the mechanisms at work.

9.3 The Real Effects

The results of this project indicate that a few salient variables may be better focused on than the cohabitation state in general. For instance, the patterns over time that emerged from the Great Britain data set show increased risk of divorce is tied to a few select variables. As cohabitation is adopted by the majority of the population, the state itself is no longer the important focus but what variables are either remaining important or no longer appearing important. An overview of the wave models reveals that when all the variables are included in the model certain trends emerge. These trends underlie what is really going on in the cohabitation effect. The cohabitation effect is better understood as a collection of individual effects that together create a tendency toward higher later marital instability. These individual effects change over time and as a result so does the effect of cohabitation

on later marital stability. The cohabitation effect is not stable. It has been changing throughout the 20th century. Initially it was a slow change, then in the 1960s that change was more rapid and near the end of the century the change appears to be reducing in magnitude once again as the participation rate reaches saturation. This concluding section of the project is concerned with discussing the implications of the changes in the smaller underlying effects. In doing so a clearer understanding of the mechanism at work in the cohabitation effect is achieved.

To summarize these effects the following areas will be discussed in more detail

- Age at first union effect
- Diffusion effect
- Education effect
- Religious effect
- Traditional family values view effect

Before moving on to the topics of focus a brief discussion of the other variables is important. The initial control variables of sex, ethnicity and place of birth proved to be less informative than first thought. The sex variable was only significant in the wave I model. The ethnicity variable was significant in the base model but dropped from significance in the Wave models. The base model showed an increase in instability for the "White" classification but this was lost when the explanatory variables were entered. The rural/urban place of birth variable was not significant in any of the three final models. This suggests that with increased adoption of cohabitation, the dichotomy between rural and urban locales no longer has as much distinction.

The dependent child variable provided a limited amount of information from the data. The presence of children has been shown to be a stabilizing factor against divorce. This research indicates there may be limits to this stabilization. The variable tapping into dependent child care responsibilities demonstrated results that were generally supportive of what was expected. Being responsible for a child under the age of 16 decreased the odds of being divorced at ten years for Wave I only. Wave A and Wave R were not significant. Several explanations as why this may be the case focused on legislative changes and higher divorce rates in general. Further calculations revealed that a clear pattern of relationship existed between being responsible for a child under 16 and being a former cohabitor. Since former cohabitors had higher odds of divorce during these time periods, these findings make more sense. Couples who form their unions through marriage report caring for fewer children than do former cohabitors.

The emphasis of this research project on the cohabitation effect can take a turn in focus as the individual mechanisms at work are discussed.

9.3.1 Age effect

The age at union formation has been sufficiently studied to identify the increased instability of early unions. This has been shown for marriage as well as cohabitation. A variety of factors are contribute to this correlation. Some of these factors include emotional and psychological maturation issues in addition to the greater likelihood of

increased stressors emerging as a result of limited income and job potential. Another issue is the off-time nature of early unions. In a time when people are extending education and delaying both union formation and fertility, the idea of young committed unions is out of sync with societal norms. The wave models indicate that age at first union may have been less influential in the earlier waves than the later but it does appear that the importance of delaying union formation until after age 21 is increasing beneficial particularly for young couples going straight to marriage. Earlier formed unions are less stable regardless of the pathways. As couples have increased option to form unions without marriage, marriages are occurring later in life which benefits their stability but on the contrary cohabitations are taking place earlier in life which works against their stability. Even non-marital cohabitation that precedes later marriage will be affected by the age at the start of the union. Stanley et al. (2006) would suggest that these early cohabitations have a greater likelihood of turning into marriages without a strong conscious commitment to marriage but instead as a response to the momentum that began at the beginning of the early union and culminates in marriage. The age effect is a strong predictor of union stability for former cohabiters and those who go straight to marriage. The disadvantage that former cohabitors have with instability of early unions may be linked to the ease in which they can enter those unions at an early age without the expectations that are associated with marriage. The age effect must also be considered to be a fluid issue. As norms change regarding the age at marriage, the acceptance of cohabitation and the growing options for forming unions, chronological age will take on different meanings. Age at first union may be

associated with less stability for earlier relationships but if those earlier relationships are no longer considered to be long term relationships by those who enter them, then the age at the union becomes spurious to the intent of the relationship.

9.3.2 Diffusion effect

Diffusion is the process in which social change begins in a small portion of the population which typical exhibit unique characteristics but then slowly spreads to a broader more representative segment of the population. As the social phenomenon becomes more adopted it becomes more socially normative and less likely to be socially sanctioned or experience punitive responses. Liefbroer and Dourleijn (2006) propose that as the adoption of cohabitation reaches the nadir, then any selectivity of those who participate should be least apparent. When only a small portion of the population or the majority of the population is engaging in cohabitation prior to marriage then the negative effect in the form of later marital stability would be most pronounced between former cohabitors and those who go straight to marriage. The BHPS data used in this study indicate that 9 out 10 unions formed by the youngest cohort (those born in the 1980s and 90s) were in the form of cohabitation. It should be again noted that many of these individuals have not been fully exposed to the risks of marriage or consequentially divorce as a result of their age. The 1970s cohort or Cohort 6 shows marriage rates slightly lower than cohabitation rates but close to being equal and almost 2/3 of people stated they cohabited first. The data show the proportion of the population who chose cohabitation as their first union is negatively associated with later marital stability. Wave A data showed a strong negative relationship of later marital divorce with the proportion of cohabitors to non-

cohabitors. This relationship drops in Wave I and reverses in Wave R. The proportion of cohabitation was strongly related to the dependent variable in the base model and in Wave R. The interaction term created to capture the changing relationship of higher divorce risk and the level of social acceptance of cohabitation was significant in all models but Wave A. With only three time points approximately each 10 years apart, it is difficult to discuss general long term trends. That being said, the three waves provide a glimpse of what Liefbroer and Dourleijn proposed. Overall the data do lend support to the diffusion effect which would see the diminishing proportion of the population who go straight to marriage as a group who now exhibits specific characteristics that would lend themselves to greater marital stability such as a greater affinity with traditional family values or religious commitment to the institution of marriage.

9.3.3 Education effect

The education effect is interesting because of the general stability of the odds ratios across the three models. Earlier research indicated that those with lower education tended to cohabit more frequently but as the practice became more socially accepted those with higher education also engaged in the practice. This data do challenge some of the current findings that suggest that education is no longer a distinguishing variable in determining later marital stability. The results from this project show a strong and consistently negative relationship between higher educational attainment and greater odds of later marital instability. The most probable explanations for this pattern would be economic. As some researchers have suggested (Becker, 1981), divorce rates are explained through economic

opportunity. The pattern of females representing higher proportions of advanced education has translated into a larger more permanent presence in the paid labour force. This in turn means increased economic independence and less reliance on a partner's income. Although not the focus of this research, further observation of who cohabits and then marries verse those who just cohabit would be expected to delineate the latter as having lower education and lower incentives and resources to marry.

9.3.4 Religious effect

No single variable has garnered more attention when it comes to studying the effects of cohabitation on later marital stability than religion or religiosity. Research continually points to the effect that religion has on shaping people's union formation patterns. Conservative religious adherents place a high value on marital commitment and on sexual expression being reserved to the marital state. Together these ideologies provide a strong barrier to both cohabitation and the potential for cohabitation to have a later effect on marital stability. Some have argued that modern cohabitation is mostly a religious issue (Laplante, 2006). Others have described the rise of cohabitation as a return to traditional patterns (Trost, 1978) and that religion is a peripheral issue. The patterns revealed in these data show that religious attendance habits provide descriptive information about the influence of religion on marital stability. Measures of religiosity have historically relied on simple one item measures such as attendance frequency. Although this variable does not capture the full dimension of religiosity, it is a very strong proxy for it. With the secularization of the Western world and Britain in particular, the normative social

expectation of appearing religious by attending a religious service has almost disappeared. On the contrary those who are religious and express it through religious service attendance are going against the norm and self-identifying as a minority. The data point to the strength and stability of religious attendance as a predictor of later marital stability. The strength of this variable is occurring simultaneously as the relationship between union formation pathway and later marital stability is also staying consistent. Further calculations revealed that the relationship between religious attendance and the variable measuring union pathways showed a growing filtering effect. Religious attendance was more strongly associated with those who went straight to marriage than former cohabitors and after controlling for cohort time periods that relationship was strengthening across waves. At the same time religion is continuing to be associated with marital stability, it is becoming less associated with those who do not marry as their first union. A religious effect is clearly at work in influencing both the pathways and the outcomes of union formation. Future research would be advised to examine what aspects of religiosity are at work in influence union choices.

9.3.5 Traditional view effect

The variable assessing traditional family views was measured by asking respondents whether they thought single parenting is just as good as parenting involving two parents. This variable, like the religiosity variable, showed an increase in predicting less martial disruption at the 10 year mark across the three waves. The pattern was small but consistent. The more respondents were likely to agree with traditional family values, the less likely they were to be divorced at year 10.

The relationship between traditional family views and the later divorce increased in strength at the same time the relationship between union pathways diminished. This led to an assessment of the pattern over time between traditional family values and union pathway. As expected, after controlling for cohort, the relationship between traditional family values was significant and increasingly related to being married straight away rather than cohabiting first.

Like religion, the acceptance of traditional family values emerged as a predictor of greater marital stability across time at the same time as it became more identified with those who married without prior cohabitation. Traditional family values are frequently associated with conservative religious beliefs and it may be that a traditional family value effect and religious effect are tapping into the same ideological frameworks that also coincide with commitment and stability in relationships.

9.4 Final Summary

With this brief summary of the results the main conclusions can now be put forth. The idea of the cohabitation effect has received a lot of attention. Why premarital cohabitation continues to have a lingering negative effect on later marital stability has prompted researchers seek to answer. This research has looked at the changing relational pathways of a population across almost 100 years and has captured the dramatic changes in these patterns during the previous 60 years. The fact that the strength of the cohabitation effect has remained stable has also been documented by this research. The final part of this study looked at the changing nature of the variables associated with the cohabitation effect. The data show a

declining influence of many of the explanatory variables. What is left is a handful of variables that emerge or remain strong in the fall of social change. These few variables become the basis of a new approach to the cohabitation effect. This research proposes that as cohabitation becomes almost universally practiced, the attention should no longer be on those who cohabit and marry or on those who simply cohabit and never marry but it is time for the research attention to be turned to those who do marry. As in the case of several other fields of study, such as the divorce literature or the fertility literature, the interesting questions are no longer about those who divorce, but about those who don't. No longer are we asking questions about why people have the number of children they do, but we are asking why do they have children at all? Family structural issues have been changing rapidly over the last century and union formation patterns have been one of those changes. Rather than solely discussing the idea of a cohabitation effect, it is proposed that research look at the effects that underlie the cohabitation effect. Areas such as, traditional family values, religiosity, education and age at first union provide that focus. These variables continue to have explanatory power where many of the earlier identified variables do not.

This research suggests that it is time to acknowledge the almost universal acceptance among western nations of cohabitation. As cohabitation becomes more normative the distinguishing factors of those who do and those don't shift more to those who don't. As some authors have pointed out (Lauer & Yodanis, 2010), marriage as an institution may not be in as much danger as some would like us to believe. Instead, marriage is alive and well but viewed as less desirable by many in

the population especially as alternatives such as cohabitation become available. Rather than a cohabitation effect, it may be valuable to explore the marriage effect. What is it about those who get married that align with religious beliefs or a greater proclivity to traditional family values? What is selective about those who see marriage as the place to develop commitment and build a union rather than as a place where it culminates?

9.5 Contributions to the Field

This research attempts to build on the shoulders of those who have come before. The various fields of study included in this project have vast and formidable collections of scholarship and research that have made this project possible. Although it may just scratch the surface of one topic or one domain of one discipline, it set out to make a unique contribution. Much has been researched and many findings have been uncovered and documented but the central contribution of this project to the greater body of literature can be summarized in three main areas.

9.5.1 Longitudinal data set

The use of longitudinal data sets has been used by numerous previous research studies on union formation patterns but this project follows the union formation histories of one nation for almost the entire 20th century. The longitudinal data set is after all the golden standard of any life course research. Using the BHPS and specially coded data sets, the union pathways of all the respondents are recorded from birth until death or right censoring due to their continued survival at the last wave of the study in 2010. Measurements of the respondent's union states are recorded in monthly discrete time, discrete state coding. This approach not only

captures the turbulent 60s and 70s when cohabitation was going through a radical change but it helps to provide the context of that change. Non-marital cohabitation is not a new phenomenon yet its current place in society is radically different to its place just 100 years ago. Like many social changes during the 20th century, the record of that change is what gives the current data meaning and substance. The data was able to identify the relative stability of the percentage of the population who cohabited and identify a cohabitation effect in its early 20th century context. At a time when both cohabitation and divorce were infrequent, this data demonstrate the already existing connection between the two. The data also highlight the rapid adoption of cohabitation as it moved from being practiced by a small minority to the majority of the population in just a couple decades. The longitudinal data also provide a glimpse of current union formation patterns and how cohabitation is almost universally practiced, how it is entered at a young age and with fewer defining factors between those who do and those who don't cohabit before marriage.

9.5.2 Optimal matching analysis

The second unique contribution this research makes to the literature is that it utilized Optimal Matching Analysis or OMA, a sequence analysis methodology that compares and clusters similar life course pathways for each respondent. A special data set was created that listed every respondent's union status by month from birth until death or right censoring if applicable. This data set is the first to explore sequence patterns on this scale. STATA user created macros were utilized to document and explore the diversity of union formation pathways. This was further enhanced by examining the data by cohorts and comparing the respondents

graphically as the similarity and dissimilarity of the pathways were compared via distance matrices. The use of optimal matching analysis has been applied to a variety of social disciplines such as women's financial career paths (Blair-Loy, 1999) and young adults transition from school to work (Schoon, McCulloch, Joshi, Wiggins, & Bynner, 2001). This project applies OMA to provide a better visual and descriptive understanding of the transition the British sample went through as cohabitation moved from being a deviant behaviour to a normative one. The use of sequence analysis has been used by family researchers in the past but in the words of J. M. White (2013) "One impediment to such research has been the dependence of simple descriptive devices for sequences rather than the identification of theoretical measures." This research has provided an illustration of how those theoretical measures could be derived.

9.5.3 Identifying change over time

The third major area of contribution made by this project is the identification of the changing nature of the mechanisms attributed to the cohabitation effect. By examining the three cohorts in which cohabitation went for "old" to "new", this research is able to identify the mechanisms, the statistical significance and strength of relationship of those mechanisms as they change over time. The design aligned the birth cohorts with corresponding panel data to connect the findings across period and cohort. This third section of the project highlighted those explanatory variables and their changing role in the explanation of the decline of the cohabitation effect. The data indicated that some variables provided explanatory power in earlier cohorts but not in later. Some variables remained constant over time while others emerged

as more strongly associated with the dependent variable which was marital stability coded as intact or not. Social explanations for the cohabitation effect have not remained constant just as the societal levels of the practice and the outcomes of cohabitation on later marital stability have not remained constant. The changing nature of those variables is an important contribution to better understanding the changing nature of cohabitation and the cohabitation effect.

Together the use of a nationally representative longitudinal data set, optimal matching analysis and identifying changing explanatory variables over time combine to create a unique contribution to the cohabitation and union formation pathway literature.

9.6 Limitations

This project has ambitiously looked at a nationally representative data set from a variety of angles in an effort to shed more light on the changing nature of union formation patterns in developed countries. Areas of limitation primarily revolve around data and methodological issues. The desire of this project was to provide greater understanding to the processes at work as cohabitation transitions from a state engaged by a small number in society to one that has become employed by the majority of the population. This process has been documented with 9 out 10 people from the most recent cohorts entering cohabitating unions as their first union. The challenge presented is not the quality of the data but the right censoring of the data due to younger members of the most recent cohorts not being old enough to experience the full risks of marriage and then divorce. Marriage is taking place later and later in Britain and divorce is most frequent around the age of 40 so if the life

courses of these individuals are to be fully taken into consideration for calculating cohabitation effect (i.e. – divorce) then more recent cohorts introduce us to the potential union pathways but really just show the beginnings of those pathways. The positive aspect of this problem is that the BHPS is ongoing and these newer cohorts will continued to be followed but it will be a couple of decades until we can see the outcome of these cohabiting and marital unions that were formed in a period in which almost everyone cohabited.

The next limitation involves the computational challenges that limited the construction of more complex life course pathways. Life course research is focused on linked lives and in the case of the sequence data constructed in this research, the sequences involved just union formation patterns. Due to the large size of the data set, the construction and analysis of multiple life aspects became time prohibitive see (Brzinsky-Fay et al., 2006) for details. Even after the reduction of the data sets into just the female population and breaking the sets into smaller cohorts, the detailed monthly discrete time and state data required several weeks of computational time to analyze each model. Other important life course areas such as housing, education and work would have also been valuable to include in the sequences in the form of multiple sequence analysis, a sequence strategy employed by some other researchers on smaller data set (Pollock, 2006).

Recent trends in life course research have focused on the correlation between expectations and outcomes (Coast, 2009). The difference between expectations and outcomes is a fertile area of study with life course data. The ability to connect different outcomes with different pathways provides a way of better

understanding the influence of the life course on those differing outcomes. This project did not include any intention measures.

Another challenge to this research, but not limited to it, is the changing meaning of events and chronological age. The typologies summarized in Chapter 4 reveal a diverse understanding of the concept of cohabitation. It is also clear that the nature of marriage has been effected by de-institutionalization. The problem with this is that the definitions for these terms are assumed to be static during a period of historical change and redefining and purposing of the concepts. Many young cohabitors are unaware of the legal implications of living together for a full year. There concept of living together may not coincide with research definitions and vice versa. In addition to the fluid nature of defining events is the way in which age has morphed over the same time period. Over the last one hundred years the developmental stages of childhood, adolescents and young adulthood have taken on different meaning. Passages of adulthood are being reconstituted and what may have been expected behaviour at age 20 may now be considered irresponsible. When is an early union too young or when is a delayed union too old? This project assumed relative stability of these terms for cross period and cohort comparisons.

The final noted limitation of this project relates to the third hypothesis and logistic regression methodology. This project has emphasized the importance of the life course approach to the study of the cohabitation effect. Panel data was specifically employed to incorporate the important concepts of age, cohort and period effects. The third hypothesis looks at the changing influence of mechanisms associated with cohabitation. Three panel waves are looked at but these data

represent a combination of cross sectional comparisons and are not purely longitudinal. The alignment of three waves of panel data to correspond to similar time periods and ages of the cohorts allowed the panel data to be more fully utilized. The use of standardized exponeniated coefficients also helped in cross model comparison.

9.7 Future Areas of Research

Future areas of research that flow from this project directly related to the limitations of the project that have already been presented. Future research would benefit from extending the work that has already been done here. This would take the form of utilizing more complex life course data (Pollock, 2006) and taking advantage of some of the recent advances in the optimal matching analysis methodologies. With the advent of greater multi-core computing power and statistical advances in the testing of sequence data (Aisenbrey & Fasang, 2010), the challenges of data analysis would be reduced. More complex data also raises concerns of greater life course heterogeneity (Rindfuss et al., 1987). Brückner and Mayer (2005) found that in their study of West German life course data that greater homogeneity was found in some life course areas as men's and women's educational and career paths converge. They conclude that there is some support for de-standardization in the life course as a result of the rapid spread of non-marital unions and the pluralisation of family forms, but that is offset by the general stability in the areas of education, training and work. As cohabitation becomes more normative, the transition diversity may even reduce as new patterns of union formation begin to dominate in society.

The incorporation of intention measures of the participants is an important aspect for cohabitation research to advance. Multiple time point measures beginning in early adolescence and following through each union would greatly enhance the understanding of the life course on later outcomes. Several current panel studies have started to gather this information NLSY and BHPS to name a few. This data is still assigned to relatively younger cohorts but has already started to show itself in studies (Coast, 2009). When intentions are aligned with outcomes, the influence of life events and turning points between the time the intention was measured and the outcome provide more detailed context to what is going on in the lives of those being studied. In other words how is agency being altered by macro institutional influences?

This project outlined several typologies used to outline different approaches to understand the purposes and functions that cohabitating relationships serve. It is clear from the diversity of typologies that cohabitors see their unions from varied perspectives, as do researchers. Research that brings greater parsimony to typologies would help the cohabitation research to incorporate the difference of the cohabitation effect based on the desired goals of those who utilize it. For example, what differences in marital stability outcome would there be for those who see cohabitation as an alternative to marriage but decide to marry later in life compared to those who see cohabitation as a stage of marital formation?

The final area for potential future research would be to examine two of the five mechanisms identified in the final union specific pathway models. Five variables were highlighted in the final models. They included the age of participants at the first

union, religiosity, education, diffusion and traditional family values. The first of these three has been well documented in the various forms of relationship stability literature. Early unions are less stable. The two areas of religiosity and traditional family values provide more interest in understanding how the two distinct union formation pathways differ in context and outcome. Religion was shown to be a strong predictor of marital stability for those who went straight to marriage but not for those who cohabit. Traditional family values were also predictive of greater marital stability for non-cohabitors and more predictive of not cohabiting.

These areas require further examination to understand what function they serve in distinguishing these groups and their later marital stability outcome. Are these acting as simple barriers to dissolving relationships either because of a strong sense of moral responsibility, or are they acting as filters or residual selection factors? Finally may they even be acting as attractors? Could religious people be attracted to something they feel marriage provides that cohabitation doesn't? Do those who embrace traditional family values do so because of religion or is there another basis for it? Secularization in Britain continues to advance contrary to some religious optimists (Crockett & Voas, 2006), family structure continues to adapt and change (Kiernan, 2001). How do these demographic shifts affect the future and strength of these variables? All of these questions provide direction for future areas of research.

9.8 Conclusion

This project began with the goal of looking at the cohabitation effect, or the idea that those who cohabit before marriage increase their odds of later marital

dissolution over those who go straight to marriage. Next the focus was on untangling the life course pathways that may differentially influence these two union formation patterns. A clear cohabitation effect was demonstrated using a nationally representative longitudinal study capturing almost one hundred years of union history data. This pattern was shown to vary across period and cohort through the use of sequence analysis and demonstrated in both tabular and cluster graph formats. The final aspect of the project utilized logistic regression to provide the different effect of previously identified union outcome influencing variables on marital stability. Odds ratios were used to compare different wave data. The results indicated that in the final general model, several variables remained significant and provided insight into the changing nature of these variables across time. The final model revealed five important mechanisms at work; age at first union, diffusion, education, religious and traditional family values. These mechanisms and their changing influence over time provide a greater understanding to what is taking place in the cohabitation effect.

The question of whether selection or experience is where the answer to understanding the cohabitation effect was not definitely answered. The selection effect was the focus of this project and evidence was provided that the selection of those who cohabit verses those who do not is clearly at work. This project suggests that future research around the selection effect question be redirected. No longer is the selection effect the domain of the cohabitors but has shifted to those who choose not to cohabit. The factors that select people into this group provide greater clarity to mechanisms that historically created greater marital instability for former cohabitors.
It is time to reconsider the emphasis on the study of the cohabitation effect and begin to channel more resource to the study of why people continue to marry as their first union in a culture that views that union formation pathway as deviant. In summary as the cohabitation effect dissipates as a result of social change, it is time to focus on those institutions that have not. The institutions of marriage and religion continue to exert influence – at least for the time being.

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Appendices

First Unio	ns													_			_						
Marriage		Divorce			Divorce<	5		Divorce<	10			Divorce<	:15			Divorce<	20			Divorce >	20		
Cohort	Freg	Cohort	Freq		Cohort	Freg		Cohort	Freg	cummul.		Cohort	Freq	cummul.		Cohort	Freg	cummul.		Cohort	Freg	cummul.	
1	311	1	1 14	0.0450		1 2	0.0064		L i	2 4	0.0129		1	3 7	0.0225	1	ι 3	10	0.0322	1		4 14	1.0000
2	1315	2	2 79	0.0601		2 9	0.0068		2 10) 19	0.0144		2	13 32	0.0243	1	2 10	42	0.0319	2	3	7 79	1.0000
3	575	3	3 73	0.1270	3	3 6	0.0104		3 10) 16	0.0278		3	11 27	0.0470) 3	3 12	39	0.0678	3	3	4 73	1.0000
4	646	4	4 92	0.1424	4	4 8	0.0124	. 4	1	7 15	0.0232		4	16 31	0.0480) 4	1 18	49	0.0759	4	4	3 92	1.0000
5	773	5	5 128	0.1656	1	5 7	0.0091		5 29	9 36	0.0466		5	27 63	0.0815	; 5	5 25	88	0.1138	5	i 4	0 128	1.0000
6	932	6	5 206	0.2210	(5 27	0.0290		5 4	3 75	0.0805		6	36 111	0.1191	. 6	5 42	153	0.1642	e	5 5	3 206	1.0000
7	803		7 211	0.2628		7 35	0.0436	-	7 6:	l 96	0.1196		7	43 139	0.1731	. 7	7 33	172	0.2142	7	3	9 211	1.0000
8	739	5	3 151	0.2043	1	3 25	0.0338	1	3 4	4 69	0.0934		8	29 98	0.1326	i 8	3 24	122	0.1651	ε	2	9 151	1.0000
9	788	9	9 188	0.2386	9	9 57	0.0723		9 5:	l 108	0.1371		9	49 157	0.1992		23	180	0.2284	9		B 188	1.0000
10	619	10	0 101	0.1632	10	37	0.0598	10	3	7 74	0.1195	1	0	15 89	0.1438	10) 7	96	0.1551	10)	5 101	1.0000
11	370	11	1 32	0.0865	1:	1 10	0.0270	1:	L 18	3 28	0.0757	1	1	4 32	0.0865	11	L 0	32	0.0865	11		32	1.0000
12	205	12	2 15	0.0732	1.	2 11	0.0537	12	2 4	1 15	0.0732	1	2	0 15	0.0732	12	2 0	15	0.0732	12		0 15	1.0000
13	76	13	3 4	0.0526	13	3 3	0.0395	13	3	L 4	0.0526	1	3	0 4	0.0526	5 13	3 0	9 4	0.0526	13		0 4	1.0000
Total	8152	Total	1294	0.1587	Total	237	0.0291	Total	32	2 559	0.0686	Total	2	46 805	0.0987	' Total	197	1002	0.1229	Total	29	2 1294	1.0000
Cohab ->	Marriage	Divorce			Divorce<	5		Divorce<	10			Divorce<	:15			Divorce<	20			Divorce >	20		
Cohort	Freg	Cohort	Freg		Cohort	Freg		Cohort	Frea	cummul.		Cohort	Freg	cummul.		Cohort	Freg	cummul.		Cohort	Freq	cummul.	
1	3	1	1 1	0.3333		1 0	0.0000		L (0 0	0.0000		1	0 0	0.0000) 1		0	0.0000	1		1 1	1.0000
2	10		2 2	0.2000		2 0	0.0000		2 (0	0.0000		2	0 0	0.0000		2 0	0	0.0000	2		2 2	1.0000
3	7	3	3 2	0.2857		3 0	0.0000		3 (0 0	0.0000		3	0 0	0.0000) 3	3 0	0	0.0000	3	1	2 2	1.0000
4	14	4	4 6	0.4286		4 0	0.0000		1 :	1 1	0.0714		4	1 2	0.1429	1 4	1 1	. 3	0.2143	4		3 6	1.0000
5	13	5	5 5	0.3846		5 1	0.0769		5	1 2	0.1538		5	1 3	0.2308		5 1	. 4	0.3077	5	5	1 5	1.0000
6	53	6	5 15	0.2830		5 1	0.0189		5 (5 7	0.1321		6	2 9	0.1698	ι ε	5 5	14	0.2642	e	5	1 15	1.0000
7	87		7 36	0.4138		7 8	0.0920		7 14	1 22	0.2529		7	6 28	0.3218		7 4	32	0.3678	7	· .	4 36	1.0000
8	136	5	3 56	0.4118	1	8 8	0.0588		3 1	7 25	0.1838		8	11 36	0.2647	۲ <u>۱</u>	3 12	48	0.3529	8	:	B 56	1.0000
9	250	<u>c</u>	9 86	0.3440		9 24	0.0960		2	3 47	0.1880		9	22 69	0.2760) (9 14	83	0.3320	9)	3 86	1.0000
10	269	10	77 (0.2862	10	28	0.1041	10	2	3 56	0.2082	1	0	15 71	0.2639	10) 6	5 77	0.2862	10)	0 77	1.0000
11	275	11	1 49	0.1782	1:	1 20	0.0727	1:	L 2	3 43	0.1564	1	1	6 49	0.1782	11	L O	49	0.1782	11		0 49	1.0000
12	194	12	2 8	0.0412	12	2 5	0.0258	12	2	3 8	0.0412	1	2	0 8	0.0412	12	2 0	8	0.0412	12		0 8	1.0000
13	90	13	3 3	0.0333	1	3 3	0.0333	13	3 () 3	0.0333	1	3	0 3	0.0333	13	3 0	3	0.0333	13		D 3	1.0000
Total	1401	Total	346	0.2470	Total	98	0.0700	Total	11	5 214	0.1527	Total		64 278	0.1984	Total	43	321	0.2291	Total	2	5 346	1.0000

Appendix A 1 - Appendix A Union duration summary

Cohab Plu	us Marriage	Divorce			Divorce<	Union5		Divorce<	Union10			Divorce<	Union15				Divorce <l< th=""><th>Jnion20</th><th></th><th></th><th>Divorce ></th><th>20</th><th></th><th></th><th></th></l<>	Jnion20			Divorce >	20			
Cohort	Freq	Cohort	Freq		Cohort	Freg		Cohort	Freq	cummul		Cohort	Freq	cum	mul		Cohort	Freg	cummul		Cohort	Freq	cumm	ul	
1	3	conore	1 1	0 3333	conore	1 0	0 0000	conore	1	0 0	0.0000	conore	1	0	0	0.0000	1	псч	0 0	0.0000	1	incq	1	1 1 00	000
2	10		2 2	0.3333		2 0	0.0000		2	0 0	0.0000		2	0	0	0.0000	2		0 0	0.0000	2	,	2	2 1 00	00
	7		3 2	0.2857		3 0	0.0000		3	0 0	0.0000		3	0	0	0.0000	3		0 0	0.0000	-		2	2 1.00	000
4	14		4 6	0.4286		4 0	0.0000		1	1 1	0.0714		4	0	1	0.0714	4		2 3	0.2143	4	1	3	6 1.00	000
	13		5 5	0.3846		5 1	0.0769		5	1 2	0.1538		5	1	3	0.2308	5		0 3	0.2308	5	i	2	5 1.00	000
e	53		6 15	0.2830		6 0	0.0000		5	5 5	0.0943		6	3	8	0.1509	6		3 11	0.2075	e	j	4	15 1.00	000
7	87		7 36	0.4138		7 6	0.0690		7	9 15	0.1724		7	11	26	0.2989	7		4 30	0.3448	7	(6	36 1.00	000
8	136	8	8 56	0.4118		8 4	0.0294		3 1	9 23	0.1691		8	10	33	0.2426	8	1	1 44	0.3235	8	5 1	12	56 1.00	000
9	250		9 86	0.3440		9 11	0.0440		9 3	0 41	0.1640		9	21	62	0.2480	9	1	5 77	0.3080	ç	j .	9	86 1.00	000
10	269	10	0 77	0.2862	1	0 14	0.0520	1) з	2 46	0.1710	1	.0	20	66	0.2454	10	1	0 76	0.2825	10	j l	1	77 1.00	000
11	. 275	1	1 49	0.1782	1	1 4	0.0145	1	1 2	9 33	0.1200	1	1	16	49	0.1782	11		0 49	0.1782	11		0	49 1.00	000
12	194	12	2 8	0.0412	1	2 1	0.0052	1	2	5 6	0.0309	1	2	2	8	0.0412	12		0 8	0.0412	12	<i>.</i>	0	8 1.00	000
13	90	13	3 3	0.0333	1	3 2	0.0222	1	3	1 3	0.0333	1	.3	0	3	0.0333	13		0 3	0.0333	13	j	0	3 1.00	00
Total	1401	Total	346	0.2470	Total	43	0.0307	Total	13	2 175	0.1249	Total		84	259	0.1849	Total	4	5 304	0.2170	Total		12	346 1.00	000
Cohab N	o Marriage	Splitting			Splitting	<5		Splitting	<10		9	Splitting	<15				Splitting<	20			Splitting>	·20			
Cohort	Freg	Cohort	Frea		Cohort	Freg		Cohort	Frea	cummul.		Cohort	Frea	cum	nmul.		Cohort	Frea	cummul.		Cohort	Frea	cumm	ul.	
1	5		1 2	0.4000		1 0	0.0000		1	0 0	0.0000		1	2	2	0.4000	1		0 2	0.4000	1		0	2 1.00	000
2	24		2 9	0.3750		2 3	0.1250		2	0 3	0.1250		2	2	5	0.2083	2		1 6	0.2500	2		3	9 1.00	000
3	13	3	3 3	0.2308		3 1	0.0769		3	1 2	0.1538		3	0	2	0.1538	3		0 2	0.1538	3	1	1	3 1.00	000
4	23		4 3	0.1304		4 2	0.0870		1	0 2	0.0870		4	1	3	0.1304	4		0 3	0.1304	4	Į.	0	3 1.00	000
9	36		5 11	0.3056		5 8	0.2222		5	3 11	0.3056		5	0	11	0.3056	5		0 11	0.3056	5	j l	0	11 1.00	000
6	89		6 19	0.2135		6 14	0.1573		5	4 18	0.2022		6	1	19	0.2135	6		0 19	0.2135	e	ز	0	19 1.00	000
7	146		7 30	0.2055		7 22	0.1507		7	5 27	0.1849		7	3	30	0.2055	7		0 30	0.2055	7	1	0	30 1.00	000
8	246	1	8 62	0.2520		8 49	0.1992		3	8 57	0.2317		8	2	59	0.2398	8		2 61	0.2480	8	\$	1	62 1.00	000
9	447		9 107	0.2394		9 86	0.1924		9 1	5 101	0.2260		9	4	105	0.2349	9		2 107	0.2394	9	i i i i i i i i i i i i i i i i i i i	0	107 1.00	000
10	606	10	0 188	0.3102	1	0 153	0.2525	1) 2	9 182	0.3003	1	.0	4	186	0.3069	10		2 188	0.3102	10	j	0	188 1.00	000
11	681	1:	1 189	0.2775	1	1 147	0.2159	1	1 3	3 180	0.2643	1	.1	9	189	0.2775	11		0 189	0.2775	11		0	189 1.00	000
12	669	11	2 182	0.2720	1	2 155	0.2317	1	2 2	6 181	0.2706	1	2	1	182	0.2720	12		0 182	0.2720	12	1	0	182 1.00	000
13	517	1	3 109	0.2108	1	3 104	0.2012	1	3	5 109	0.2108	1	.3	0	109	0.2108	13		0 109	0.2108	13	-	0	109 1.00	00
Total	3502	Total	914	0.2610	Total	744	0.2125	Total	12	9 873	0.2493	Total		29	902	0.2576	Total		7 909	0.2596	Total		5	914 1.00	000

Appendix A 2 - Appendix A Union duration summary cont.

Cohort Six					
Summary Stats		·			
-> sex = male					
Variable	Obs	Mean	Std. Dev.	Min	Max
sex	3035	1	0	1	1
union1	3035	0.954201	0.918684	0	2
end1	1511	5.309067	0.918055	2	6
stop_date1	1495	1236.548	56.00033	997	1311
union2	3035	0.230313	0.519244	0	2
start_date2	559	1225.534	50.04948	1059	1307
end2	534	5.498127	1.07111	2	6
stop_date2	534	1277.78	45.56792	1093	1311
union3	3035	0.040527	0.258038	0	2
start_date3	81	1236.833	46.84469	1099	1302
end3	72	4.986111	1.347852	1	6
stop_date3	71	1210.155	260.8833	-1	1307
age1union	1682	25.62782	4.113284	9	38
age1fert	915	26.44044	4.560498	14	38
length1union	1495	3.50301	3.299805	0	21
length2union	534	4.432584	3.556321	0	17

Appendix B 1- Summary union data - Male

Cohort Six					
Summary Stats					
-> sex = female					
Variable	Obs	Mean	Std. Dev.	Min	Max
sex	3112	2	0	2	2
union1	3112	1.052378	0.901526	0	2
end1	1777	5.151941	1.0014	1	6
stop_date1	1765	1228.139	60.64434	1050	1311
union2	3112	0.305591	0.593651	0	2
start_date2	733	1214.052	54.96984	1050	1309
end2	700	5.23	1.315675	1	6
stop_date2	698	1269.16	49.51118	1099	1312
union3	3112	0.073908	0.343466	0	2
start_date3	153	1227.484	45.94281	1122	1305
end3	140	4.985714	1.330255	2	6
stop_date3	140	1242.011	189.5473	-1	1310
age1union	1925	24.31273	4.35936	14	38
age1fert	1330	24.30376	4.857587	15	37
length1union	1765	3.773938	3.49577	0	20
length2union	698	4.796562	3.826044	0	21

Appendix B 2- Summary union data - Male

Appendix B 3 - Sequences tot/males/females

Sequence C	rder		
Sequence-			
Or	Freq.	Percent	Cum.
der			
1	2,552	43.53	43.53
12	1,086	18.52	62.05
13	917	15.64	77.69
123	759	12.95	90.64
121	247	4.21	94.85
1212	103	1.76	96.61
1213	65	1.11	97.71
12123	56	0.96	98.67
12121	48	0.82	99.49
134	30	0.51	100
Total	5,863	100	

. sqtab if	=	1,	(1/10)	
Sequence-Or	der			
		Freq.	Percent	Cum.
1		1,358	46.27	46.2
12		580	19.76	66.0
13		423	14.41	80.4
123		363	12.37	92.8
121		98	3.34	96.1
1212		44	1.5	97.6
1213		23	0.78	98.4
12123		19	0.65	99.0
12121		17	0.58	99.6
1345		10	0.34	100
Total		2,935	100	
. sqtab if	=	2,	(1/10)	
Sequence-Or				
Sequence-Or der		Freq.	Percent	Cum.
Sequence-Or der		Freq.	Percent	Cum.
Sequence-Or der 1		Freq. 1,194	Percent 40.76	Cum. 40.7
Sequence-Or der 1 12		Freq. 1,194 506	Percent 40.76 17.28	Cum. 40.7 58.0
Sequence-Or der 1 12 13		Freq. 1,194 506 494	Percent 40.76 17.28 16.87	Cum. 40.7 58.0 74.9
Sequence-Or der 1 12 13 123		Freq. 1,194 506 494 396	Percent 40.76 17.28 16.87 13.52	Cum. 40.7 58.0 74.9 88.4
Sequence-Or der 1 12 13 123 121		Freq. 1,194 506 494 396 149	Percent 40.76 17.28 16.87 13.52 5.09	Cum. 40.7 58.0 74.9 88.4 93.5
Sequence-Or der 1 12 13 123 121 1212		Freq. 1,194 506 494 396 149 59	Percent 40.76 17.28 16.87 13.52 5.09 2.01	Cum. 40.7 58.0 74.9 88.4 93.5 95.5
Sequence-Or der 1 12 13 123 121 1212 1212 1213		Freq. 1,194 506 494 396 149 59 42	Percent 40.76 17.28 16.87 13.52 5.09 2.01 1.43	Cum. 40.7 58.0 74.9 88.4 93.5 95.5 96.9
Sequence-Or der 1 12 13 123 121 1212 1212 1213 12123		Freq. 1,194 506 494 396 149 59 42 37	Percent 40.76 17.28 16.87 13.52 5.09 2.01 1.43 1.26	Cum. 40.7 58.0 74.9 88.4 93.5 95.5 96.9 98.2
Sequence-Or der 1 12 13 123 121 1212 1212 12123 12123		Freq. 1,194 506 494 396 149 59 42 37 31	Percent 40.76 17.28 16.87 13.52 5.09 2.01 1.43 1.26 1.06	Cum. 40.7 58.0 74.9 88.4 93.5 95.5 96.9 98.2 99.2

Appendix B 4 - concentration by tot &

gender

Concentration of Sequences								
Observations	observe	Cum.						
1 3411	55.490	55.490						
2 121	1.9684	57.458						
3 25	0.4067	57.865						
4 17	0.2765	58.142						
5 14	0.2277	58.369						
6 20	0.3253	58.695						
7 11	0.1789	58.874						
8 10	0.1626	59.036						
9 12	0.1952	59.232						
10 18	0.2928	59.524						
11 11	0.1789	59.703						
12 7	0.1138	59.817						
13 7	0.1138	59.931						
14 11	0.1789	60.110						
15 8	0.1301	60.240						
16 8	0.1301	60.370						
17 6	0.0976	60.468						
18 6	0.0976	60.566						
19 1	0.0162	60.582						
20 7	0.1138	60.696						
21 4	0.0650	60.761						
22 7	0.1138	60.875						
23 3	0.0488	60.924						
24 3	0.0488	60.972						
25 4	0.0650	61.037						
27 2	0.0325	61.070						
28 2	0.0325	61.102						
30 2	0.0325	61.135						
Total 3758	61.135							

. sqdes if sex ==1		
# of observed sequences	: 3035	
overall # of obs. element	s: 6	
max sequence length: 47	1	
# of producible sequence	s:.	
Observations	observe	Cum.
1 1650	54.3657	54.3657
2 64	2.10873	56.4744
3 32	1.05436	57.5288
4 21	0.69192	58.2207
5 31	1.02141	59.2421
6 15	0.49423	59.7364
7 11	0.36243	60.0988
8 26	0.85667	60.9555
9 7	0.23064	61.1861
10 13	0.42833	61.6145
11 11	0.36243	61.9769
12 8	0.26359	62.2405
13 3	0.09884	62.3393
14 2	0.06589	62.4052
15 1	0.03294	62.4382
16 1	0.03294	62.4711
19 1	0.03294	62.5041
20 1	0.03294	62.5370
Total 1898	62.5370	

Appendix B 5 - B 4 Continued

. sqdes if sex ==2		
# of observed sequences	5: 3112	1
overall # of obs. elemen	ts: 6	
max sequence length: 46		
# of producible sequence	es: .	
Observations	observe	Cum.
1 1918	61.6323	61.6323
2 55	1.76735	63.3997
3 27	0.86760	64.2673
4 23	0.73907	65.0064
5 27	0.86760	65.8740
6 20	0.64267	66.5167
7 14	0.44987	66.9665
8 10	0.32133	67.2879
9 5	0.16066	67.4485
10 6	0.19280	67.6413
11 4	0.12853	67.7699
12 10	0.32133	68.0912
13 7	0.22493	68.3161
14 3	0.09640	68.4126
15 4	0.12853	68.5411
16 1	0.03213	68.5732
Total 2134	68.5732	

Observations	Sequences	observed	Cum.
1	23	0.757825	0.757825
2	6	0.197694	0.955519
3	7	0.230643	1.186161
4	2	0.065898	1.252059
5	2	0.065898	1.317957
8	1	0.032949	1.350906
9	2	0.065898	1.416804
10	1	0.032949	1.449753
17	1	0.032949	1.482702
19	1	0.032949	1.515651
23	1	0.032949	1.5486
44	1	0.032949	1.581549
98	1	0.032949	1.614498
363	1	0.032949	1.647447
423	1	0.032949	1.680395
580	1	0.032949	1.713344
1358	1	0.032949	1.746293
Total	53	1.746293	

Appendix B 6 - Concentration by same order - Male

Observations	Sequences	observe	Cum.
1	37	1.18894	1.188946
2	9	0.28920	1.478149
3	5	0.16066	1.638817
4	3	0.09640	1.735219
5	2	0.06426	1.799486
6	2	0.06426	1.863753
7	2	0.06426	1.928021
8	1	0.03213	1.960154
10	2	0.06426	2.024422
11	1	0.03213	2.056555
13	2	0.06426	2.120823
21	1	0.03213	2.152956
31	1	0.03213	2.18509
37	1	0.03213	2.217224
42	1	0.03213	2.249357
59	1	0.03213	2.281491
149	1	0.03213	2.313625
396	1	0.03213	2.345758
494	1	0.03213	2.377892
506	1	0.03213	2.410026
1194	1	0.03213	2.442159
Total	76	2.44215	

Appendix B 7 - Concentration by same order - Female

sequence statistics full and by sex sqstatsum											
Variable	Obs	Mean	Std. Dev.	Min	Max						
length1	6147	303.5007	53.15981	173	467						
length2	6147	19.36815	35.02843	0	237						
length3	6147	21.89914	40.76998	0	258						
length4	6147	0.793883	6.096467	0	147						
length5	6147	0.663901	6.85928	0	174						
length6	6147	0.064096	2.410951	0	124						
elemnum	6147	1.816659	0.847305	1	5						
epinum	6147	2.022125	1.251812	1	14						
epinum1	6147	1.122011	0.397374	1	6						
epinum2	6147	0.490971	0.642645	0	6						
epinum3	6147	0.351391	0.506867	0	4						
epinum4	6147	0.03579	0.197662	0	3						
epinum5	6147	0.020986	0.155333	0	3						
epinum6	6147	0.000976	0.03123	0	1						

Appendix B 8 - Sequence statistics - total

SEX =1					
Variable	Obs	Mean	Std. Dev.	Min	Max
length1	3035	308.716	53.08371	185	466
length2	3035	17.67776	32.97775	0	237
length3	3035	18.82208	37.68205	0	258
length4	3035	0.489951	4.283711	0	88
length5	3035	0.345964	4.37538	0	141
length6	3035	0.014168	0.780529	0	43
elemnum	3035	1.744975	0.800999	1	5
epinum	3035	1.902471	1.135386	1	12
epinum1	3035	1.095552	0.35682	1	5
epinum2	3035	0.454036	0.608211	0	4
epinum3	3035	0.313674	0.486936	0	4
epinum4	3035	0.023064	0.158671	0	3
epinum5	3035	0.015816	0.137355	0	3
epinum6	3035	0.00033	0.018152	0	1

Appendix B 9 Sequence statistics - Male

Appendix B 10 - Sequence statistics - Female

Sex ==2					
Variable	Obs	Mean	Std. Dev.	Min	Max
length1	3112	298.4145	52.74794	173	467
length2	3112	21.01671	36.84951	0	237
length3	3112	24.90006	43.36749	0	257
length4	3112	1.090296	7.439883	0	147
length5	3112	0.973972	8.607273	0	174
length6	3112	0.112789	3.299153	0	124
elemnum	3112	1.886568	0.8847	1	5
epinum	3112	2.138817	1.345735	1	14
epinum1	3112	1.147815	0.431783	1	6
epinum2	3112	0.526992	0.672682	0	6
epinum3	3112	0.388175	0.523042	0	3
epinum4	3112	0.048201	0.228737	0	3
epinum5	3112	0.026028	0.170928	0	3
epinum6	3112	0.001607	0.040058	0	1

Appendix C

Schoen and Baj (1984) – martial life table summary measures for England and Wales male and female cohorts born 1900-45 and the year 1975

						Coho	rt born					Year
Sum	mary measures	1900/4	1905/9	1910/14	1915/19	1920/24	1925/29	1930/34	1935/39	1940/44	1945	1975
	T	40.0			50 0	(a) 1	MEN					<i>co.c</i>
1.	at birth	49.9	53.1	55.7	58.8	60.1	61.9	63.4	64.9	65.4	66.4	69.6
2.	Proportion ever married	0.651	0.688	0.719	0.754	0.769	0.789	0.817	0.843	0.854	0.865	0.882
3.	Proportion ever married of	0.887	0.894	0.898	0.897	0.900	0.904	0.918	0.928	0.952	0.930	0.902
	those surviving to age 15	27.3	27.6	27.2	26.8	26.3	26.1	25.6	25.1	24.7	24.6	25.5
4.	Proportion of marriages	0.046	0.066	0.090	0.114	0.133	0.151	0.183	0.220	0.254	0.270	0.278
0.	ending in divorce	01010	01000	01050		01100	0.101	01100		0.201	0.2.0	0.210
6.	Proportion of marriages	0.305	0.293	0.285	0.276	0.269	0.261	0.251	0.239	0.229	0.224	0.221
7.	Proportion of marriages	0.649	0.640	0.626	0.611	0.598	0.587	0.566	0.540	0.518	0.506	0.501
8.	Average age at divorce	48.9	48.2	46.7	45.4	45.2	45.7	44.6	42.6	40.7	39.7	38.9
9.	Average age at widowhood	64.4	65.6	66.4	67.1	67.6	68.2	68.4	68.6	68.6	68.7	68.8
10.	Marriages per person	1.13	1.14	1.16	1.18	1.19	1.21	1.25	1.31	1.36	1.39	1.41
11.	marrying Proportion of widowed persons	0.270	0.248	0.232	0.215	0.205	0.194	0.189	0.187	0.185	0.185	0.183
12.	who re-marry Proportion of divorced persons	0.781	0.786	0.796	0.807	0.808	0.813	0.837	0.864	0.884	0.893	0.897
13.	who re-marry Average age at re-marriage	52.6	53.3	54.2	55.7	56.8	58.5	59.0	59.1	59.3	59.4	59.8
14.	for widowed persons Average age at re-marriage	50.3	49.3	47.7	46.5	46.7	47.9	47.1	45.2	43.4	42.4	41.6
	for divorced persons											
15.	Average duration of marriage	35.3	35.3	35.5	35.3	35.3	35.0	34.1	32.8	31.6	31.0	30.0
16.	Average duration of widowhood	5.6	7.6	5.4	5.4	7.8	7.8	7.8	7.8	7.8	7.8	7.8
17.	divorced state	5.0	3.5	5.4	3.4	5.0	5.0	5.7	5.5	5.5	3.2	5.1
18.	Proportion of life spent	0.439	0.439	0.430	0.425	0.416	0.415	0.402	0.390	0.381	0.381	0.409
19.	Proportion of life spent	0.522	0.523	0.530	0.534	0.541	0.540	0.550	0.558	0.563	0.562	0.535
20.	Proportion of life spent widowed	0.035	0.033	0.033	0.032	0.032	0.032	0.032	0.032	0.032	0.032	0.031
21.	Proportion of life spent	0.004	0.005	0.007	0.009	0.011	0.014	0.017	0.020	0.024	0.025	0.025
	divolecu			(b) W	OMEN							
1	Expectation of life at birth	56.8	59.8	61.9	65.7	66.8	68.7	70.3	71.3	72.3	73.5	75.9
2.	Proportion ever married	0.637	0.678	0.721	0.772	0.809	0.832	0.862	0.884	0.901	0.917	0.933
3.	Proportion ever married of	0.830	0.847	0.877	0.890	0.921	0.929	0.947	0.958	0.963	0.964	0.950
	those surviving to age 15											
4.	Average age at first marriage	26.0	26.1	25.6	25.0	23.8	23.8	23.2	22.6	22.4	22.3	22.9
5.	ending in divorce	0.039	0.037	0.079	0.104	0.150	0.144	0.172	0.209	0.240	0.200	0.205
6.	Proportion of marriages	0.643	0.636	0.624	0.610	0.595	0.588	0.570	0.545	0.519	0.506	0.494
7	ending in widowhood	0 318	0 307	0.296	0.285	0.276	0.268	0.258	0 247	0 235	0.228	0 223
/.	ending in death	0.510	0.507	0.290	0.205	0.270	0.200	0.200	0.247	0.200	0.220	0.225
8.	Average age at divorce	46.7	46.6	45.2	43.5	42.3	43.3	42.8	41.1	39.1	38.0	36.8
9.	Average age at widowhood	64.3	64.8	65.0	65.3	65.4	65.6	65.7	65.8	65.8	65.8	65.9
10.	Marriages per person marrying	1.08	1.10	1.11	1.14	1.16	1.17	1.20	1.24	1.30	1.33	1.36
11.	Proportion of widowed persons who re-marry	0.087	0.088	0.087	0.085	0.084	0.082	0.081	0.080	0.080	0.079	0.078
12.	Proportion of divorced persons who re-marry	0.547	0.570	0.609	0.651	0.671	0.659	0.683	0.728	0.772	0.792	0.808
13.	Average age at re-marriage for widowed persons	51.7	51.5	51.7	52.5	52.9	53.9	53.9	53.8	53.8	53.7	54.1
14.	Average age at re-marriage for divorced persons	46.7	46.3	44.8	43.0	41.4	42.9	43.7	42.8	41.0	40.0	38.7
15.	Average duration of marriage	35.3	35.4	35.5	35.5	35.8	35.7	35.2	34.0	32.4	31.6	30.4
16.	Average duration of widowhood	15.2	14.9	14.8	14.7	14.7	14.6	14.6	14.6	14.5	14.5	14.5
17.	Average duration of	13.7	13.0	12.3	11.4	10.7	11.1	11.2	10.7	9.8	9.4	8.9
18.	Proportion of life spent	0.445	0.433	0.407	0.390	0.355	0.351	0.334	0.320	0.313	0.311	0.328
19.	Proportion of life spent	0.429	0.440	0.461	0.474	0.503	0.505	0.516	0.524	0.526	0.526	0.510
20.	married Proportion of life spent	0.119	0.118	0.120	0.120	0.122	0.122	0.122	0.122	0.122	0.122	0.120
21.	widowed Proportion of life spent	0.006	0.009	0.013	0.016	0.020	0.023	0.028	0.034	0.039	0.042	0.042
	divorced											

Appendix D

Interaction Variable divorced at 10 years X Proportion Cohabiting

Variable	Obs	Mear	า	Std. Dev.	Min	Max	
pro_cohab	17830	.2339	581	.2388112	.0175	.8841	
disolve_m~10	Coel	:	Std. Eri	r. z	z P>z	[95% Conf	. Interval]
fmr_cohab	1.4826	62	.132707	1 11.	17 0.000	1.222561	1.742763
Mean	.8123	8153	.081668	9.	95 0.000	.652248	.9723823
Plus 1 sd	.1280	633	.115014	· 1.	11 0.266	09736	.3534866
Plus 2 sd	5561	885	.194153	-2.	86 0.004	936722	51756546
Plus 2.5 sd	8983	148	.238002	4 -3.	77 0.000	-1.364791	4318387

Appendix E

BHPS 5629 Translation Code

```
Begin with the "FAMILY HISTORIES FROM BHPS" dataset, called family. Dates in
there are month counters relative to Jan, 1900, with 0=Jan, 1900. In the final
family_states dataset we created for sequence analysis are the following variables:
PP=subject id
Sex=sex
birthplus1=birth month + 1 so that 1 is for Jan, 1900
last_intplus1=last interview month + 1 so that 1 is for Jan, 1900
state1-state1313 = state indicators for each month starting with 1=Jan, 1900
```

We dropped 11 subjects with birth months < Jan, 1900. We also dropped subjects with missing start dates (-1) of any actual

We also dropped subjects with missing start dates (-1) of any actual union, since this over complicates the sequence and there were few anyway. Missing end dates were allowed in.

Family had N=32,342 Family_states has N=32,123 (99.3% of the records are used)

Repair one record:

For one of the unions under id 15845451, add 1 to the stop month, since data had stop month 1 less than start month for that union under that id.

States 1=single 2=cohabiting 3=married 4=separated 5=divorced

6-widowed

Algorithm:

Set all states outside lifespan to missing.

Initialize lifespan to single.

Loop through unioni from 1 to 10.

Process each unioni only if start date is non-missing (an actual union):

Set starti to floor(start date), to scrape off the .5 for imputed.

If stop date is missing or -1 then set stopi to the last interview date, otherwise to floor(stop date).

If stopi > floor(last interview) then set it to floor(last interview).

If stopi<starti but within 6 months then set stopi=starti, to correct small negative union times.

Confirm that no longer negative union times remain.

If starti<=floor(last interview) then

Loop through months i from starti to stopi.

If union=2 then state=2 (cohabit).

else if union=1 then state=3 (marriage)

If end=2 and floor(separation) >=0 and i> floor(separation) then state=4 eparation)

(separation).

Loop through months i from stopi+1 to floor(last interview).

If end=1 then state=6 (widowed).

else if end=3 then state=4 (separated)

else if end=2 then state=5 (divorced)

else if end=6 then state=previous month's state (no change)

else if end=5 then state=3 (marriage)

else if end=4 then state=1 (single)

We check to confirm no states outside the lifespan are nonmissing, and no states inside the lifespan are missing. Reminder: lifespan in this analysis means from birth to last interview. Note, the above algorithm may assume that a relationship that ends in marriage leaves one in a married state, until it encounters the next relationship type, that will overwrite those months forward. This is continued until the end of the union data for that subject. That is the general idea of the algorithm.

Appendix F

BHPS 5629 Guide

UK Data Archive Study Number 5629 British Household Panel Survey Consolidated Marital, Cohabitation and Fertility Histories FAMILY HISTORIES FROM BHPS Chiara Daniela Pronzato January 2010

The consolidated marital, cohabitation and fertility file contains retrospective lifetime histories and subsequent panel data related to respondents' partnerships and childbearing. It contains 32,342 adults interviewed at least once during the survey. Every date is calculated as months elapsed since January 1900. When we are not sure about the month, we denote it to be June and we add .5 at the end. Missing dates are set to -1.

Variables description

variable name	variable label
рр	person number
sex	Gender
birth	date of birth

Example				
рр	Sex		Birth	
10017933	Female		513	
Gender composition				
gender	freq.		Percent	
male	15,401		47.62	
female	16,941		52.38	
	32,342		100.00	
Example				
obs	mean	st dev	Min	max
birth 32,342	706.102	251.5614	-62	1116

_
We define variables that designate the household and region, hh_ and region_ in which a respondent lived at each wave, from wave 1 to wave 18.

Variable	es description								
variable	name		variable lab	variable label					
hh1			household number in the first wave						
region1	ion1 region of residence in the first wave					е			
Examp	ble								
рр	hh1	region1	hh2	region2	hh6	region6			
10014	578 1001221	inner lo	2000369	inner lo	6000185	inner lo	-		

This is the region distribution in respondent-years, pooling all 18 waves; 19 is Northern Ireland, -1 is missing.

region	observations	
-1	36	
inner London	5,097	
outer London	9,195	
r. of south east	28,991	
south west	14,274	
east Anglia	6,416	
east midlands	13,125	
west midlands conurbation	5,811	
r. of west midlands	8,120	
greater Manchester	6,015	
Merseyside	3,396	
r. of north west	7,023	
south Yorkshire	4,007	
west Yorkshire	5,397	
r. of Yorks & Humberside	5,110	
Tyne & wear	3,513	
r. of north	6,031	
Wales	22,389	
Scotland	27,623	
<u>19</u>	11,930	

Fertility

For each child the person has had, we know when the child was born and the birth order. The maximum number of children for a person is 16, for 1 respondent. The variable fertility provides the source of information: when it is equal to 2, 11, 12 the information is from the fertility histories in the BHPS in waves 2, 11 and 12, respectively and it is updated with information from the panel (using all natural children stated in the household); when it is equal to 100, there is only information from the panel; when it is equal to 0 the person is childless. The data of each child birth is given by childbirth_. When two births are too close together, but we are sure that they are two different children, we impose a distance of 9.75 months. We also define a variable called twin_, which indicates whether the birth is a singleton, twins or triplets.

variable nam	ne	variable label	variable label				
childbirth1		first childbirth					
twin1		number of kids for the first childbirth					
fertility		source of inform	source of information for the fertility history				
Example							
childbirth1	twin1	childbirth2	twin2	last_int	fertility		
730	1	754	1	1270	2		
source	of informatio	on for the fertility histo	ory	observatio	ns		
no child	ren			14,881			
wave 2			6,135				
wave 11			3,320				
wave 12	2		1,905				
from the	e panel			6,101			

Variables description

number of children	observations
1	17,461
2	12,643
3	5,610
4	2,110
5	816
6	345
7	160
8	85
9	47
10	22
11	14
12	8
13	4
14	4
15	4
16	1

This is the distribution of the order of the births over time.

Are there twins?

children per birth	observations
one child	38,907
two twins	420
three twins	7

For purely descriptive reasons, we calculate the person's age at their first child (in months):

number of subjects	survival time 25%	survival time 50%	survival time 75%
32274	294	357	-

For purely descriptive reasons, we calculate the interval between the first and the second child.

number of subjects	survival time 25%	survival time 50%	survival time 75%
17376	25	48	118

For purely descriptive reasons, we calculate the interval between the second and the third child.

number of subjects	survival time 25%	survival time 50%	survival time 75%
12568	38	-	-

All the durations are equal or greater than 9 months.

min1	min2	min3	min4	min5	min6	min7	min8	min9	min10	min11	min12	min13	min14
168	9	9	9	9	9	9	9	9	9	9	9	9	12

Min 1 is the minimum age of the parent (14 years old). Min 2-16 are the minimum distance between two following births.

Union histories

From the retrospective histories and the panel we can determine how many unions each respondent has had during their life up to their last interview in the panel. For those without a retrospective history, we can observe how many they have had during the panel. The maximum is 10 unions, for two respondents. The union_ type indicator variable is equal to 1 when it is a marriage, to 2 when it is cohabitation and 0 otherwise. For some unions we do not know the start date; these are indicated by a value of 1 for the indicator variable for 'left censoring', left_; for such unions the variable start_date_ gives the first date in which we observe them in the union. For the others start_date_ is the actual starting date. For each union, we also provide the date of its end, stop date , how the union ended, end , and the pid number of the partner, partner 1, when available. If the union type is equal to 1 (marriage), the partner can die (widowhood, end_=1), they can get divorced (end_=2), separate (end_=3) or they can be currently together (end_=6); if the union type is equal to 2 (cohabitation), they can split (end_=4), get married (end_=5) or they can be currently together (end =6). For divorced people, there is also the date of the separation, separation, when available. All dates for which we are not sure about the month end with .5. The variable marital indicates the source of information: when it is equal to 2, 11, 12 they are from the marital histories in BHPS in waves 2, 11 and 12, respectively, and they are updated with information from the panel; when it is equal to 100, they married in their life, but we only have information from the panel; when it is equal to 50, they married and got divorced before the survey and we have no information about dates; when it is equal to 0 they were never married. The variable cohabitation indicates the source of information: when it is equal to 2, 11, 12 they are from the cohabitation histories in BHPS in waves 2, 11 and 12, respectively, and they are updated with information from the panel; when it is equal to 100, they have cohabitated in their life, but we only have information from the panel; when it is equal to 0, they never cohabitated.

Example

union1	partner1	left1	start_date1	end1	stop_date1	separation
marriage	10162372	1	1103	divorce	1186	1175

The following statistics are defined over all unions.

source of information for the marital	observations
no marriages	11,652
wave 2	6,976
wave 11	1,224
wave 12	552
already married	1,858
from the panel	10,080

source of information for the cohabitation	observations
no cohabitations	24,514
wave 2	1,240
wave 11	825
wave 12	253
from the panel	5,510

How can a marriage end?

end	observations
widowhood	2,454
divorce	3,553
separation	613
currently	14,479

Purely for descriptive reasons, we calculate the median duration of a marriage.

number of	survival time 25%	survival time 50%	survival time 75%
13715	174	441	656

How can cohabitation end?

end	observations	
splitting	2,812	
marriage	4,424	
currently	2,361	

Purely for descriptive reasons, we calculate the median duration of cohabitation.

number of	survival time 25%	survival time 50%	survival time 75%
8925	13	29	62