The association between premarital cohabitation and marriage breakdown: Continuity and change in Australian marriages 1945 – 2000

DRAFT ONLY – NOT FOR CITATION OR QUOTATION

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Abstract

Most research into the association between cohabitation and marriage breakdown finds a cohabitation gap whereby cohabitors have an increased risk of marriage breakdown compared to non-cohabitors (Smock 2000). This finding is at odds with much of the theory which predicts that living with a partner before marriage improves the process of mate selection and weeds out poorer quality matches prior to marriage (Beck & Beck-Gernsheim 1995, Becker 1981, Beck-Gernsheim 2002, Giddens 1992, Klijzing 1992). Subsequent explanations for the counter-intuitive increased risk of marriage breakdown for cohabitors that have emerged include a selection argument, a causal argument and a measurement argument (Axinn & Thornton 1992, Lillard et al 1995, Teachman & Polonko 1990). The results of some studies, however, indicate that the association between cohabitation and marriage breakdown is not as consistent as first thought (De Vaus et al 2005, Klijzing 1992, Liefbroer & Dourleijn 2006, Schoen 1992). We develop this idea and investigate whether the association between cohabitation and marriage breakdown has changed over time as cohabitation becomes more widely practised. Our results provide strong evidence that the association between cohabitation and marriage breakdown is changing over time. We find that the gap in marriage breakdown between cohabitors and non-cohbaitors diminishes each marriage year for marriages formed prior to 1987. This association then reverses for marriages formed from 1987 onwards, where non-cohabitors have an increased risk of marriage breakdown. It appears that as cohabitation becomes more popular the cohabitors become a less select group and for these more recent marriages the theory that cohabitation should reduce the risk of marriage breakdown holds true.

As with most Western nations, in Australia the number of couples cohabiting prior to, or instead of marriage has risen over the last few decades (De Vaus 2004). The proportion of couples cohabiting prior to marriage has grown from 16 percent in 1975 to 76 percent in 2005 (ABS 2006) and the proportion of couples cohabiting at any given time has increased from 6 percent in 1986 to 15 percent in 2006 (ABS 2007). A large and growing international research literature has emerged to investigate the social implications of the growth in unmarried cohabitation (see Smock 2000 for an overview). One issue that has received a lot of attention is the relationship between cohabitation prior to marriage and marriage breakdown. Most research finds that married couples who lived together prior to marriage have an increased risk of marriage breakdown compared to those who do not (Axinn & Thornton 1992, Bennett et al 1988, Berrington & Diamond 1999, Bracher et al 1993, DeMaris & Rao 1992, Dush et al 2003, Hall & Zhao 1995, Lillard et al 1995, Teachman & Polonko 1990).

There is some evidence, however, that the association between cohabitation and marriage breakdown is not as consistent as first thought. In a recent cross national comparative study of 16 European countries, Liefbroer and Dourleijn (2006) find the association between cohabitation and marriage breakdown varies depending on the diffusion of cohabitation in each country. Moreover, several studies investigating change in the determinants of divorce across cohorts find that the association between cohabitation and marriage breakdown has diminished or disappeared for younger cohorts (De Vaus et al 2005, Klijzing 1992, Schoen 1992), although other similar studies have found no change in the association (Dush et al 2003, Teachman 2002). Given this inconclusive evidence

and the rise of cohabitation in society over the last few decades we believe that further investigation into the changing association between unmarried cohabitation and marriage breakdown over time is warranted. The aim of this paper is to investigate whether and to what extent the association between cohabitation prior to marriage and marriage breakdown has changed over time for people marrying in Australia between1945 and 2000. We use retrospective data from the Household Income and Labour Dynamics in Australia (HILDA) survey and event history modelling techniques to investigate this issue.

Cohabitation and marriage breakdown
While the meaning of unmarried cohabitation varies across countries, time and individuals, it is often viewed as a precursor to marriage either as a trial marriage or as a form of engagement (Manning & Smock 2002, Rindfuss & Vandenheuvel 1990). In this sense a period of unmarried cohabitation allows a couple get to know one another without making the full marriage investment, if the relationship is successful then the couple get married. Hence the period of cohabitation before marriage enhances the process of mate selection by helping the couple to make a better and more informed marriage choice (Becker 1981), and also weeds out poorer quality relationships as only the better quality relationships go on to marriage (Klijzing 1992). Some argue that the rise in cohabitation in society is in response to the increasing risk of divorce and the instability of the institution of marriage (Axinn & Thornton 1992, Beck-Gernsheim 2002, Cherlin 2004). Overall, these arguments imply that cohabitation prior to marriage will reduce the risk of marriage breakdown. While for some European countries this is the case (see Liefbroer & Dourleijn 2006 for an overview of 16 European countries, and Symeonindou & Mitsopoulpous 2003 find this in Greece), overall there is little empirical support for the

expectation that premarital cohabitation reduces the risk of marriage breakdown. In Australia (Bracher et al 1993, De Vaus et al 2005) and other comparable western countries such as the U.S. (Bumpass et al 1991, DeMaris & Rao 1992, Dush et al 2003, Teachman & Polonko 1990) Canada (Hall 1996, Hall & Zhao 1995) and Britain (Berrington & Diamond 2000) research consistently finds that people who cohabit prior to marriage have an increased likelihood of marriage breakdown compared to those who do not cohabit.

Three main explanations have been proposed for the cohabitation gap in the risk of marriage breakdown, where cohabitors have an increased risk compared to non-cohabitors. The first is that the association is spurious in that there is a *selection* effect of people into cohabitation. Therefore the differences in marital stability between those who cohabit before marriage and those who do not are due to the differences in the nature and characteristics of the two groups (Axinn & Thornton 1992, Clarkberg et al 1995, Liefbroer & Dourleijn 2006, Lillard et al 1995). For example, research has found that those who cohabit are less conventional in their attitudes towards relationships and marriage (Clarkberg et al 1995), or have lower levels of commitment to marriage (Hall 1996, Lillard et al 1995) and are therefore more likely to divorce.

A second explanation is causal, in that the *experience* of cohabitation increases the propensity to divorce (Axinn & Thornton 1992, Dush et al 2003, Smock 2000). Few studies have thoroughly tested this hypothesis due to the specific nature of the data required to investigate the issue properly. Nevertheless, there is some evidence to support the causal explanation. Axinn & Thornton (1992) found respondent's attitudes

towards acceptance of divorce were more positive after a period of non-marital cohabitation than they were prior to a period of non-marital cohabitation. This suggests that a period of cohabitation may influence people's attitudes in such a way as to make them more likely to consider divorce.

The third is a *measurement* explanation (Bennett et al 1988, De Vaus et al 2003, DeMaris & Rao 1992, Teachman & Polonko 1990). Some researchers argue that cohabitors have a higher rate of marital dissolution than non-cohabitors because couples who cohabit before marriage have been in the relationship longer. Therefore, the higher dissolution among cohabitors is due to their increased exposure to the risk of union breakdown during the unmarried cohabitation period. The evidence is mixed, however, where some studies find that including the amount of time spent in unmarried cohabitation explains all of the cohabitation gap (Teachman & Polonko 1990), whereas other studies find the gap remains even after controlling for time in cohabitation (DeMaris & Rao 1992).

The changing relationship between cohabitation and marriage breakdown
There are several reasons to expect that the association between cohabitation and marriage breakdown is changing over time. First, the increase in the number of people cohabiting before marriage over the last few decades suggests that cohabitors may not be as unique as they once were. Initially the practise of cohabitation originates within a small select group of people and the characteristics of that select group differ from the main population in ways that also increase their risk of divorce (Nazio & Blossfeld 2003). If cohabitation spreads and is adopted by the broader population the differences between the people who cohabit and those who do not should diminish (Liefbroer & Dourleijn 2006). However, if cohabitation becomes normalised and the majority of the

population adopt it, then a "reverse selection" process occurs, and those who do not cohabit become the unique group. As a result the differences between the two groups are likely to be larger. This U-shaped hypothesis for change in the relationship between cohabitation and marriage breakdown as cohabitation becomes more popular in a society has been identified by several authors (Liefbroer & Dourleijn 2006, Schoen 1992).

A second reason for expecting change in the association between premarital cohabitation and marriage breakdown is that the nature of cohabitation itself is transforming. As the practise of cohabitation before marriage has become more normalised and accepted couples are cohabiting for longer before marriage than in the past (De Vaus et al 2005, Manning & Smock 2002). Given that previous research has found that the association between cohabitation and marriage breakdown varies depending on how long a couple live together before marriage it is therefore likely that this trend will impact the gap in marriage breakdown between cohabitors and non-cohabitors (De Vaus et al 2005, Lillard et al 1995). For example, the increased time in unmarried cohabitation for more recent marriages may increase the total union duration and thereby reduce the gap in marriage breakdown between cohabitors and non-cohabitors. Further, some research finds that a shorter period of cohabitation increases the risk of marriage breakdown compared to a longer period of premarital cohabitation (De Vaus et al 2005). Taken together this evidence suggests that the trend toward longer periods of cohabitation may have a stabilising effect on marriage for those who cohabited prior to marriage in more recent cohorts.

A handful of studies have examined differences in the association between premarital cohabitation and marriage breakdown across time, using either marriage or birth cohorts. This research has produced mixed results.   Teachman (2002) and Dush et al (2003) both used U.S. data and neither find cohort differences in the risk of marriage breakdown for those who cohabited before marriage and those who did not cohabit. In contrast, Schoen (1992) also used U.S data and found that the gap in the risk of marriage breakdown for cohabiters compared to non-cohabiters fell in younger birth cohorts born 1948 – 1952 and 1953 – 1957, but remained consistent and strong for older cohorts (born 1928 – 1947). Klijzing (1992) examined Dutch data and found that those in an older birth cohort (born 1928 – 1939) had a lower risk of dissolution if they married without cohabitation compared to two younger cohorts (born 1940 – 1954 & 1955 – 1965), conversely the results also suggested that those in the older cohort had a higher risk of dissolution if they married after a period of cohabitation.. Most recently deVaus et al (2005) using Australian data, found that controlling for a range of selection factors the association between cohabitation and marriage breakdown in the first 8 years of marriage in younger marriage cohorts, married 1980-1984 or 1990-1994, was not significant. In contrast the increased risk of marriage breakdown for cohabitors in the first 8 years of marriage was consistent and strong for those in the older cohort married 1970-1974.

While the evidence is far from unanimous, the findings of these studies suggest that the association between premarital cohabitation and marriage breakdown is changing for younger cohorts compared to older cohorts. Of those studies that find a change over time, the results indicate that as the practise of cohabitation becomes more widely practised and accepted the association with marriage breakdown diminishes.

Nevertheless, the body of work on this issue is relatively small and there are some limitations to the studies. First, all previous studies investigating the change over time in the association between premarital cohabitation and marriage breakdown are limited to examining a relatively narrow range of cohorts. Moreover, in some of these studies the cohorts examined span a large number of years, which is likely to de-sensitise the analysis to subtle changes over time (Dush et al 2003). Further, some of this research investigates birth and marriage cohorts prior to the steep rise in cohabitation since the 1980s (Schoen 1992, Teachman 2002).

While the current study addresses a similar topic by investigating change over time in the association between cohabitation and marriage breakdown it also builds on previous research in a number of ways. First, we examine a wider range of marriage years. We include people who married in 1945 when premarital cohabitation in Australia was extremely rare to 2000 when premarital cohabitation was practised by the overwhelming majority of couples who married. By using event history techniques we are able to account for variations in marriage duration for younger compared to older marriage years. Further, rather than aggregating people together into cohorts we treat year of marriage as a continuous measure, to sensitise our analysis to subtle changes over time. In addition to examining the extent of change in the association between cohabitation and marriage breakdown over time, we also attempt to understand this change in the context of the selection and measurement explanations for the gap in marriage breakdown between cohabitors and non-cohabitors. We do not have the

appropriate longitudinal data to properly investigate the causal explanation that the experience of cohabitation itself increases the risk of marriage breakdown.

Methods

Data

We use retrospective marriage history data from wave 1 (2001) of The Household, Income and Labour Dynamics in Australia (HILDA) survey an Australian national panel survey comprising 7,692 households and 13,914 individuals. Households were selected using a multi-stage sampling approach and a 66 percent response rate was achieved (Watson & Wooden 2002b). Within households data were collected from all household members aged over 15 years using face-to-face interviews and self-completed questionnaires. A 92 percent response rate for individuals was achieved (Watson & Wooden 2002b). Overall the HILDA sample is representative of Australian households although there are some characteristics of individuals in the HILDA sample that differ from the Australian population. Specifically women are over-represented, unmarried people are under-represented and immigrants from non-English-speaking backgrounds are under-represented. However, the discrepancies are not large and are unlikely to compromise the overall quality of the data (Watson & Wooden 2002a).

The Analytic Sample

The analytic sample includes all respondents who have married irrespective of their current marital status. We restrict our analysis to respondents who married during or after 1945 as preliminary analysis showed that cohabitation prior to that time was virtually non-existent in our sample (this is discussed in more detail later). In addition we only examine first marriages, because evidence shows that higher order marriages have an increased risk of ending and the determinants of marriage breakdown in higher order

marriages tend to be different than those for first marriages (Booth & Edwards 1992, Coleman et al 2000). Respondents with missing data on their marital history or current marital status were dropped from the sample. In addition, a number of respondents with missing or implausible data on some of the independent variables were dropped from the sample where the numbers were insufficient to warrant imputing or controlling for missing data. The final sample includes first marriage data for 8,844 respondents who married between 1945 and 2000.

Dependent variable

The dependent variable, marriage breakdown, is coded 0 if the respondent is still in their first marriage and 1 if their first marriage has ended in separation or divorce. This information was derived from retrospective marriage history data, and if the respondent had married more than once the measure refers to the respondent's first marriage.

Key Independent variables

The two main variables of interest are cohabitation with marriage partner prior to marriage and year of marriage.   The cohabitation measure is a variable indicating whether the respondent lived with their marriage partner before marriage, coded 1 = yes, and 0 = no. Year of marriage is a continuous measure taken from the respondent's marriage history data asking the year of their first marriage. The indicator for year of marriage is centred to breakdown colinearity with the probability of marriage breakdown. In earlier models we also included a squared term for marriage year to investigate whether the association was curvilinear. This squared term was not significant indicating a more linear trend. Finally, we include an interaction term between cohabitation and marriage year to establish whether the effect of cohabitation on marriage breakdown is changing for more recent marriages successive marriage years.

Controls for selection

A number of controls are included that previous Australian (and overseas) research has found to be associated with cohabitation and marriage breakdown (Bracher et al 1993, Dush et al 2003, Hewitt et al 2005). It should also be noted that we are limited in the controls we include in the models by the retrospective nature of the marriage data used. For example, we do not include controls for religion and gender role attitudes because these measures are taken in 2001, not at the time of marriage or separation and therefore cannot be reliably used.

Even though we are primarily interested in whether the respondent cohabited with their marriage partner prior to their first marriage, we include a control for whether the respondent cohabited with another partner without marrying prior to their first marriage, coded 1 = yes with a referent of 0 = no. A measure for respondent's ethnic background, coded 1 = Australian born, 2 = Overseas born English speaking country, and 3 = Overseas Born NESB (non-English speaking background) is included, with Australian born as the reference group. We also control for parental divorce (1 = yes). Age at marriage is included as a continuous variable. There are three measures for children; whether or not the respondent had a child prior to marriage (1 = yes) or an early birth (child born the same year as marriage) also coded 1 = yes, 0 = no, and a time-varying measure indicating whether and when the first child was born within the marriage. A dummy is also included for missing values on the child measures. We control for highest level of education using a variable of four categories 1) Bachelor degree or higher, 2) Diploma, 3) Trade/Certificate, and 4) Year 12 or less. Bachelor degree or higher is the reference group and a dummy variable for missing values is also included.

Table 1 about here

Analytic approach

We use a discrete time event history modelling approach. To do this we construct a marriage-year data set where a respondent contributes a line of data for each year they are married. The dependent variable is coded 0 in years that the respondent is married and 1 in the year that they separate. This data set has 175,936 marriage years. As indicated in our review of the literature we are also interested in investigating how changes in the amount of time couples spend in unmarried cohabitation prior to marriage may have contributed to a change in the association between cohabitation and marriage breakdown. Therefore, in addition to the marriage year data set we construct a data set where union duration is the time component of the dependent variable. In this data set a respondent contributes a line of data for each year they were in a cohabiting relationship, both unmarried and married, with their first marriage partner. This data set contains 181,847 union-years.

Logistic regression is used to predict the likelihood that a marriage will end given that it did not end in the previous year. Preliminary analysis indicated that there were no gender differences in the association between cohabitation and marriage breakdown. Rather than excluding one sex from our analysis or running our analysis separately by sex we ran all models including both men and women, with a dummy control for female (1 = yes) with a referent of male. In addition we adjust for clustering within households as *still married* men and women are from the same household, to do this a robust standard error accounting for the covariance between spouses is applied to all models. We also include a quadratic term for duration dependence to account for the variation in the probability of separation over the length of marriage. Analysis proceeds in three stages.

The first model (Model 1) acts as a baseline and includes the indicator for cohabitation, the year of marriage and the interaction term, the duration term for this model is marriage years. The second model (Model 2) includes all controls with marriage years as the duration term. The third model (Model 3) includes all controls and takes into account the time spend in total union duration.

Results

In Figure 1 we present the proportion of respondents who report that they cohabited prior to their first marriage for the full sample. While the full sample includes people who married between 1931 and 2000 we exclude marriages before 1945 because cohabitation prior to marriage was non-existent in our sample prior to then. Until the 1970s the proportion of respondents cohabiting prior to marriage was less than 10%. This proportion increases steeply until the early 1980s where around 50% of the sample report cohabiting prior to marriage. From 1987 the proportion of respondents cohabiting prior to their first marriage exceeds 50% and by 2000 around 90% of the sample report they cohabited prior to their first marriage.

Figure 1 about here

Table 2 presents the results for all three discrete time models. In Model 1 the main effect for cohabitation before marriage indicates a large increased risk of marriage breakdown for those who cohabited. The main effect for year of marriage also indicates that the risk of marriage breakdown is increasing each year. Of most interest though, is the negative coefficient for the interaction term. What this term suggests is that for people who cohabit prior to marriage the risk of marriage breakdown, relative to those who did not cohabit, decreases each marriage year. The interpretation of this coefficient is multiplicative and the results suggest that the difference in the probability of marriage

breakdown between cohabitors and non-cohabitors diminishes for more recent marriages compared to earlier marriages, but does not disappear. At the date of survey (right censoring) the gap has gone from β=1.093 ((1945-1967.28 x -0.017 = 0.379) (0.714 + 0.379 = 1.093)) to β=0.158 ((2000-1967.28 x -0.017 = -0.556) (0.714 + -0.556 = 0.158)). This association is also illustrated in Figure 2.

Table 2 about here

Figure 2 about here

The introduction of the controls in the model, as shown in Model 2, changes the magnitude of the associations, but not the direction or significance of the associations. The coefficient for the main effect of cohabitation is reduced slightly, although it is still large, positive and statistically significant. The coefficient for the main effect of year of marriage increases. The size of the coefficient for the interaction term remains the same. Given that the interpretation of the interaction is multiplicative this has implications for understanding the gap in marriage breakdown between cohabitors and non-cohabitors. Overall these results indicate that taking into account various social and demographic characteristics that the difference between cohabitors and non-cohabitors disappears for those in the most recent marriage cohorts marrying in 1999/2000 ((0.588/-.018 = 32.67) (32.67 + 1967.28 = 1999.95)). The change in the association between cohabitation and marriage year with the controls is illustrated in Figure 3.

Of the controls in the model

Figure 3 about here

Taking into account union duration in the dependent variable in Model 3 also changes the magnitude of the association, but not the significance or direction. The main

effect for cohabitation increases back to the baseline model, but the main effect for marriage year decreases. The interaction increases in magnitude by about one third. This suggests that taking into account time spent in cohabitation as well as other demographic characteristics there is no longer a gap in the risk of marriage breakdown between cohabitors and non-cohabitors for those marrying in the late 1980s and later ((0.696/-0.034 = 20.47) (20.47 + 1967.28 = 1987.75)). This trend is illustrated in Figure 4. The most salient feature of this final graph is that the risk of separation over time for non-cohabitors increases at a steady and consistent rate, and for those marrying after 1987 we observe an increased risk of separation for those who do not cohabit compared to those who do cohabit. Another notable feature of this graph is that once social and demographic characteristics and time in cohabitation is taken into account the probability of separation for cohabitors is relatively flat. Indicating that, irrespective of when the respondent married their probability of separation is similar for those who cohabited before marriage.

Figure 4 about here

Discussion

The association between premarital cohabitation and marriage breakdown was examined for marriages formed between 1945 and 2000 in Australia. In 1945 unmarried cohabitation was virtually non-existent, but by 2000 the vast majority of couples marrying did so after a period of cohabitation. While most previous research finds that cohabitation prior to marriage increases the risk of marriage breakdown, this finding is not as universal as it was once thought. A handful of studies have found that the association between cohabitation and marriage breakdown may vary depending on how

widely cohabitation is practised in society and that this may vary across time as cohabitation becomes more popular (De Vaus et al 2005, Klijzing 1992, Schoen 1992). The results of this study provide additional evidence that the association between cohabitation and marriage breakdown has diminished or disappeared for more recent marriages.

The addition of selection factors to the models closes the gap in marriage breakdown between cohabitors and non-cohabitors. While we are limited by the range of factors we include in the models the closing of the cohabitation gap nevertheless suggests that selection plays an important role in the differences in the risk or marriage breakdown between cohabitors and non-cohabitors. In our final model, when time spent in cohabitation is taken into account by measuring union duration then the gap not only closes but is reversed, where non-cohabitors have a higher risk of marriage breakdown than cohabitors after the late 1980s. This finding should be viewed circumspectly. Some researchers have argued that including time in cohabitation into an event history model predicting marriage breakdown is problematic, because while in the cohabiting state the respondent is not legally married and therefore not exposed to the risk of marriage breakdown (Bennett et al 1988, Teachman & Polonko 1990). In other words the relationships of those who cohabited prior to marriage had to survive at least to marriage to be included in the analysis and for that initial cohabitation period these respondents were not at risk of marriage breakdown. To test this idea we re-run our final model with observations left-censored until the respondent marries. For example, if a respondent has cohabited for 2 years before marriage they enter the observation risk-set from the 3rd year of the union. The results of these models were similar to the results of Model 2.

Finally, our findings provide some support the U-shaped diffusion hypothesis put forward by Liefbroer and Dourleijn (2006) to explain cross national differences in the cohabitation gap in marriage breakdown. When cohabitors are a minority select group, prior to the 1970s in our sample, the gap between cohabitors and non-cohabitors is large. As the number of cohabitors increases and the proportion of cohabitors and non-cohabitors becomes more equal the gap diminishes. And if we accept the final model with union duration as the most appropriate model the difference increases after 1987, once the relative proportion of cohabitors exceeds that of non-cohabitors in our sample. It is interesting to note, however, that the gap in marriage breakdown after 1987 exists because the non-cohabitors have an increased risk of separation compared to the cohabitors. This finding is consistent with the results of both deVaus (De Vaus et al 2005) and Schoen (Schoen 1992), who found that the difference between cohabitors and non-cobitors was reversed for more recent cohorts.

This increased risk of marriage breakdown for non-cohabitors after 1987 is at odds with both the selection and causal arguments for the cohabitation gap in marriage breakdown. Both explanations were developed to explain a gap whereby cohabitors have an increased risk compared to non-cohabitors. According to a selection argument the characteristics of non-cohabitors are supposed to operate in ways that decrease the risk of marriage breakdown. Hence when only a minority of couples are not cohabiting prior to marriage the gap should increase to the advantage of non-cohabitors. Also, while we have not been able to model causality due to data limitations, the results of the final model raise some issues with the causality argument. A causal argument, which posits

that it is the *experience* of cohabitation that influences a persons attitude towards marriage and relationships in ways that increase the risk of marriage breakdown (Axinn & Thornton 1992, Dush et al 2003, Lillard et al 1995), suggests that cohabitors should have an increased risk of separation relative to non-cohabitors under all circumstances. This finding does however provide strong support for the theory that living with a partner before marriage decreases the risk of marriage breakdown in more recent marriages (Beck & Beck-Gernsheim 1995, Becker 1981, Beck-Gernsheim 2002, Giddens 1992, Klijzing 1992). Perhaps these theorists were operating before their time and the data was not reflecting the theory, but as the practise of cohabitation has changed so to has the association between cohabitation and marriage breakdown and for more recent marriages the data better matches the theory. Our results suggest that the social climate in which cohabitation before marriage is practised has implications for the association between cohabitation and marriage breakdown.

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Table 1:   Means (SD) and proportions of model variables

	Mean	SD
Cohabited	0.15	
Year married	1967.28	13.1
Female	0.54	
Cohabited without marriage	0.03	
Ethnic Background:		
Australian Born	0.71	
Overseas born English speaking	0.12	
Overseas born non-English speaking	0.17	
Parents divorced	0.11	
Age at marriage	23.37	4.4
Children:		
Premarital birth	0.04	
Early birth	0.06	
First child born in marriage	0.75	
Missing	0.09	
Education:		
Bachelor degree	0.16	
Diploma	0.09	
Trade/certificate	0.26	
Yr 12 or less (ref)	0.54	
Missing	0.03	
Number of people	8,844	

Table 2:   **The association between cohabitation, year of marriage and marriage breakdown**

	Model 1		Model 2		Model 3	
	Coeff	se[a]	Coeff	se	Coeff	se
Cohabited	0.714***	.010	0.59***	.11	0.70***	.10
Year married (centred)	0.03***	.003	0.04***	.003	0.04***	.003
Cohabited x Year married (centred)	-0.02**	.006	-0.02**	.006	-0.03**	.006
Female			-0.04	.04	-0.05	.04
Cohabited without marriage			0.49***	.09	0.60**	.09
Ethnic Background:						
Australian Born			-		-	
Overseas born English speaking			0.05	.07	0.04	.07
Overseas born non-English speaking			-0.26**	.07	-0.26**	.07
Parents divorced			0.41**	.06	0.39**	.06
Age at marriage			-0.07**	.007	-0.08**	.007
Children:						
Premarital birth			0.48**	.10	0.31**	.10
Early birth			0.42**	.09	0.42**	.09
First child born in marriage			-0.16*	.07	-0.23**	.07
Education:						
Bachelor degree			0.05	.07	0.06	.07
Diploma			0.12	.08	0.13	.08
Trade/certificate			0.10	.06	0.11	.06
Yr 12 or less (ref)			-		-	
Number of people	8,844		8,844		8,844	
Number of separations	2,103		2,103		2,103	
Observations	175,936		175,936		181,847	

Note: Models also include controls for duration dependence and missing values on education
[a]   Robust standard error for covariance between spouses.
*p<.05, **p<.01, ***p<.001.

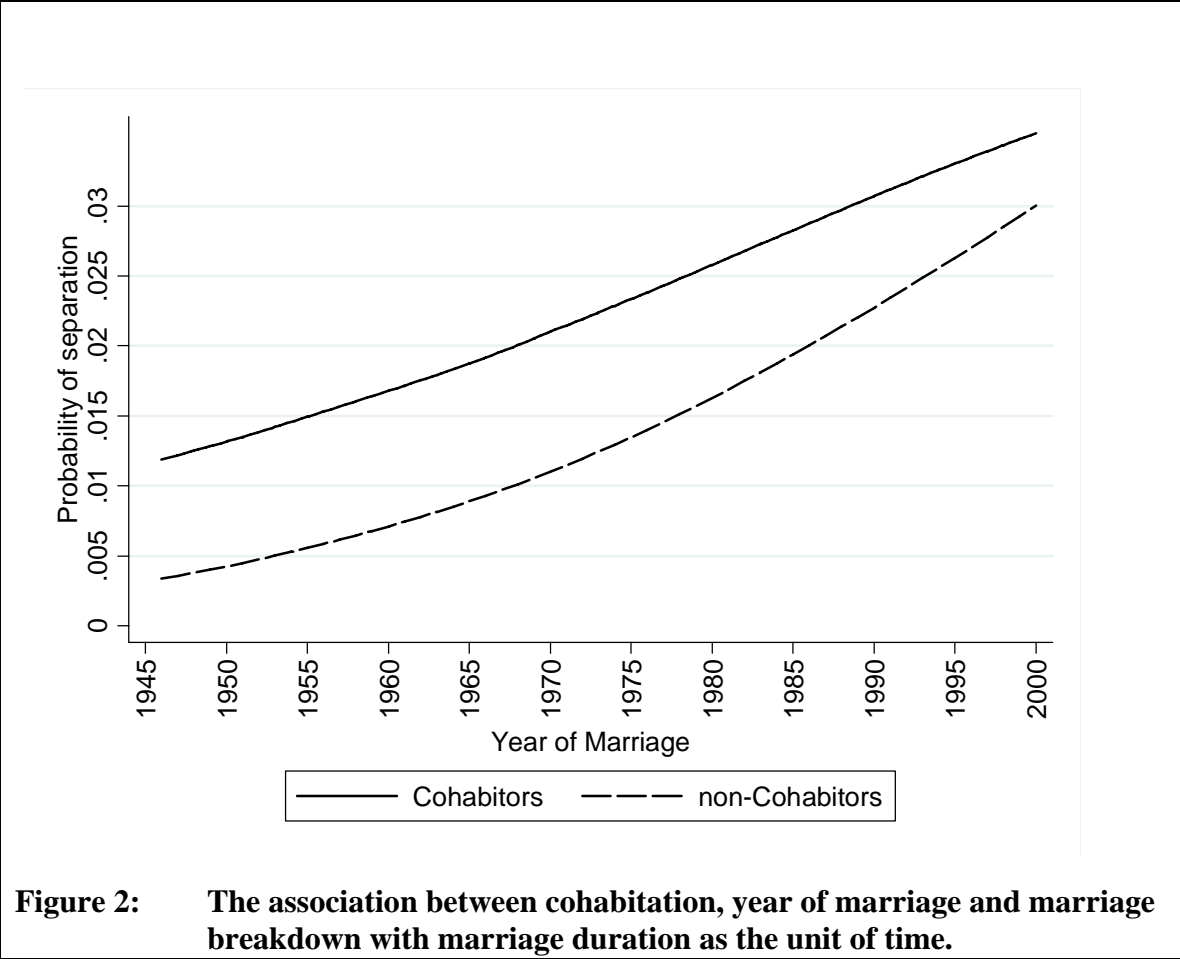**Figure 1:** **Proportion of sample who report cohabiting prior to marriage 1931 – 2000 (source HILDA 2001)**

Figure 2: **The association between cohabitation, year of marriage and marriage breakdown with marriage duration as the unit of time.**
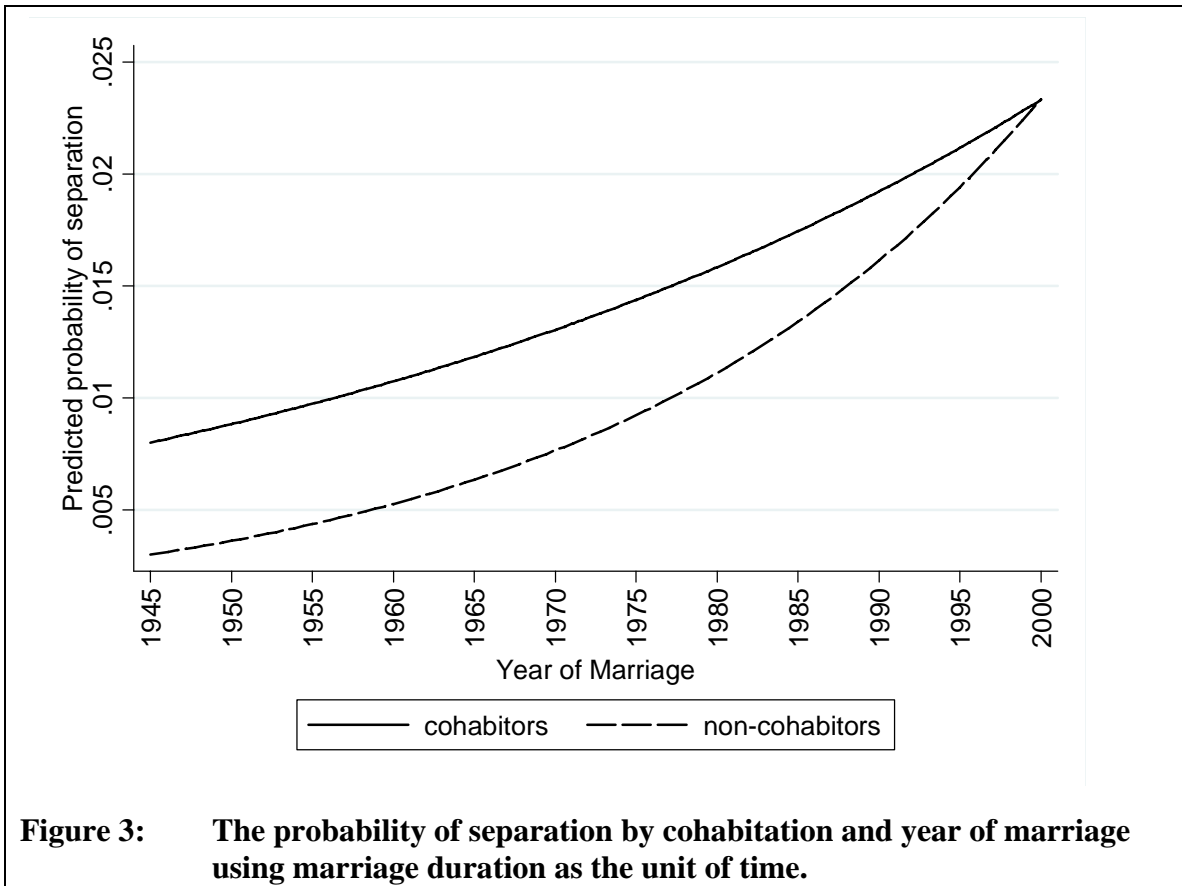
Figure 3: **The probability of separation by cohabitation and year of marriage using marriage duration as the unit of time.**

Note: This graph holds constant selection controls at their mean or modal response. This graph shows the probability of divorce for a female, born in Australia, aged 23.32 when married, whose parents did not divorce, and their first child was born in marriage and who has yr12 or less education.
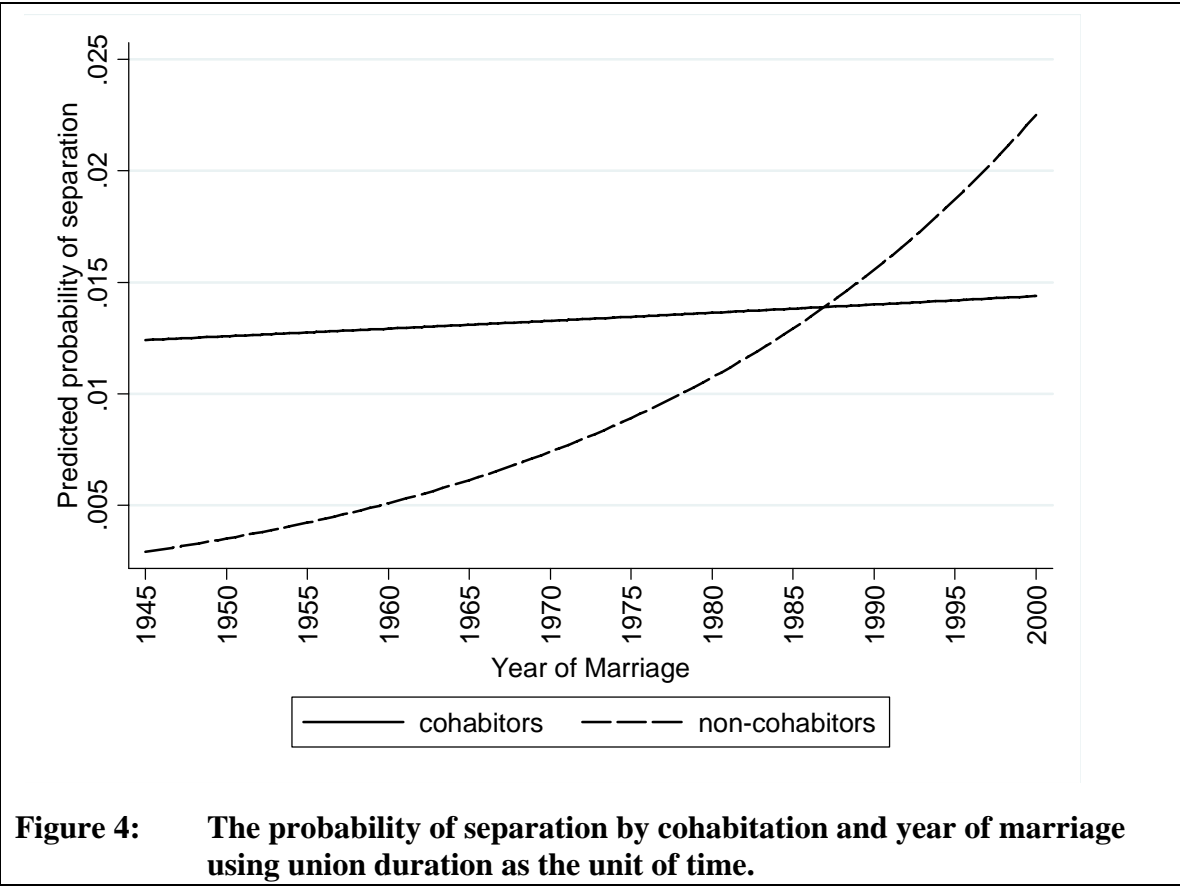
Figure 4: **The probability of separation by cohabitation and year of marriage using union duration as the unit of time.**

Note: This graph holds constant selection controls at their mean or modal response. This graph shows the probability of divorce for a female, born in Australia, aged 23.32 when married, whose parents did not divorce, and their first child was born in marriage and who has yr12 or less education.