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Financial implications of relationship breakdown: does marriage matter?

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Abstract

In raw data in the UK, the income loss on separation for women who were cohabiting is less than the loss for those who were married. Cohabitees lose less even after matching on observable characteristics including age and children. This difference is not explained by differences in access to benefits or labour supply responses after separation. We show that the difference arises because of differences in access to family support networks: cohabitees' household income falls by less because they are more likely to live with other adults, particularly their family, following separation, even after matching on age and children. Divorced women do not return to living with their extended families. The greater legal protection offered by marriage does not appear to translate into economic protection.

Keywords: divorce, cohabitation, income loss, matching

JEL Classification: D10, J12

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1 Introduction

When relationships end, there are often significant financial consequences for both partners. Both lose the economies of scale of partnership, but there may be differences between men and women in the extent of hardship that separation imposes, and differences that arise from whether the relationship was one of marriage or cohabitation.[1] This paper addresses the importance of these differences, and focuses in particular on the question of whether married women are subject to different outcomes than cohabiting women when a relationship ends.

Unmarried cohabitation is widespread in the UK and is increasingly viewed as an acceptable alternative to legal marriage (Haskey 2001). Particularly in the UK, cohabitation is not as closely related to socioeconomic characteristics as in the US and cohabitation durations are longer (Seltzer 2004). The rise of unilateral divorce makes the difference between separating from marriage and cohabitation less stark than when divorce required both parties to consent. However, there are still substantial differences in the allocation of assets and income after separation (see Fisher, 2010, and Voena, 2010). For divorcing couples, there have been moves in both the UK and the US towards greater equity in sharing assets and towards recognising the contributions often made by women within marriage to the future earnings of their husbands (see Miles and Probert, 2009), and these moves lessen the cost of divorce for women. On the other hand, in England and Wales, no such protection exists for cohabitees who separate.[2] This legal protection of married women suggests that, if otherwise identical to the cohabitees, married women should suffer smaller income falls on separation. Perhaps surprisingly then, we show using UK data from the British Household Panel Survey (BHPS) that, in the raw data, income losses for women separating from cohabitation are significantly less than for women separating from marriage. Similar results have been found in the US (Avellar and Smock 2005) and the Netherlands (Manting and Bouman 2006).[3] The contribution of this paper is to understand how much of this apparent better outcome for cohabitees can be explained by differences in characteristics within the relationship, such as the presence of children, and how much by differences in behaviour and available mechanisms for recovery after breakdown.

We find that the fall in equivalised income on separation for married women is 55%, whereas for cohabiting women it is 23%.[4]

[1] We use the term "cohabitation" to refer to a cohabiting relationship where the individuals act as if married but are not in fact married.

[2] In Scotland, the law changed in 2009 to allow some protection for cohabitees under family law. It is not clear yet whether this has changed substantially the cost of separating from cohabitation. Other countries, such as Canada and Australia, confer similar protections on cohabitees after a given length of time.

[3] There is also substantial evidence that the income losses experienced by women after separating are larger than those experienced by men (see Duncan and Hoffman 1985, Bianchi, Subaiya and Kahn 1999, McManus and DiPrete 2001, McKeever and Wolfinger 2002, Gray and Chapman 2007, Gadalla 2009, Uunk 2004, Aassve et al 2007, Jenkins (2009), Fisher and Low (2009)). Most of these studies do not distinguish between marriage and cohabitation.

[4] These falls are in contrast to the observed **increases** in equivalised income for married men of XX and for cohabiting men of XX, as documented in Fisher and Low (2009).

This result in the raw data shows very little because of the problem of selection. In particular, whether a couple are married or cohabiting is not random, and whether a relationship ends or not is not random and is unlikely to be independent of marital status: characteristics, such as the presence of children, that affect the probability of being married rather than cohabiting also affect the cost of the dissolution of a relationship. Further, behaviour after a relationship ends may differ because of different private and social support mechanisms. For example, Fisher and Low (2009) show that repartnering is harder in the presence of children and when older, and that repartnering is an important mechanism for regaining economies of scale and maintaining equivalised income. The key point is that if married couples have less ways to mitigate loss on separation and have access to poorer support mechanisms, they may only separate when the marriage is very bad and so observed losses on separation are greater.

To control for this, we match women separating from cohabitation with those separating from marriage, using observable characteristics while still in the relationship. Matching on the number of children in the household, age and other demographics, as well as income shares in marriage, leads to the difference in the fall in equivalised income reducing from 31 percent to 18 percent. The remainder of the difference is explained by differences in support mechanisms and behaviour after separation: the main difference is in greater support for cohabitees from other family members and in the consequent living arrangements, rather than differences in labour supply behaviour or government support. Cohabitees are more likely to live with other adults, particularly other family members, after separation and this provides financial support. We show that this is not driven by cohabitants having less access to the former home.

These results suggest a difference in the support mechanisms used by married and cohabiting women: once a woman is married, she is significantly less likely to return to her family in the event of relationship breakdown, and more likely to repartner, even after matching on age and children. Marriage is associated with different social support networks. Whilst this might reflect the selection of women who prefer having a partner to relying on family for support, this result may also reflect the difference in the social standing of marriage and cohabitation. The status of being married might change the perception of need for support, and so damage the social support networks available to a woman.

If we assume that there is no income sharing and so other adults in the household do not provide any transfers, there is no difference in the loss at separation of the married versus the cohabitees. On the other hand, we find no evidence that cohabitees are disadvantaged in terms of income loss by having less protection by the law. The main caveat is that we have only limited information on income transfers between former partners,[5] and we would expect these transfers to differ between those who were previously married and previously cohabiting.

[5] The incidence of ongoing spousal maintenance payments is very low in the BHPS, which matches findings in Miles and Probert (2009).

Section 2 provides a simple framework for thinking about the cost of separation. Section 3 describes our data source and sample. Section 4 describes the differences between the experience of those separating from cohabitation compared to those separating from marriage. Section 5 uses matching analysis to disentangle the effect of observed differences between cohabitees and married couples. We provide evidence for the alternative mechanisms that can generate the differences. Section 6 concludes.

2 Framework

Individuals who meet and decide to form a serious relationship make decisions about cohabitation versus getting married. What decision is made will be driven by preferences, desire for security, moral values, as well as expectations about the duration of the relationship, and by expectations (or the realisation) of having children together. The allocation between cohabitation and marriage is therefore not random. Further, those characteristics which affect the decision on whether to marry or cohabit will also affect the cost of separating. Every couple in a relationship faces a cost of separating. We can capture part of this cost by the fall in the standard of living that would occur on separation, although clearly there are costs and benefits of separation not captured by this measure. This potential cost will differ across individuals depending on what mechanisms would be available to mitigate the loss. One mechanism is legal protection, which is greater for married woman. Other mechanisms include access to labour markets and other social support networks. For example, access to labour markets is likely to be worse for those with childcare responsibilities and so the cost of separation is likely to be higher. Further, the benefits of remaining together are likely to be larger because of the greater economies of scale. The presence of children also affects the probability of repartnering: a lower probability means the cost of separating will be higher.

This cost of separation will feed into the decision about whether or not to separate. Those for whom the cost is higher, such as those with children, will be less likely to choose to separate. This means that if we observe those individuals separating, it must be because the benefit of remaining married is particularly low. This benefit is likely to vary with unobserved characteristics of the individual and the marriage. Therefore, we focus on the cost of separation and the difference in standard of living before and after separation.

We restrict our attention to those who separate or divorce, and so our results need to be interpreted as the average effect of separation *for those who separate*. Couples who remain together may well be systematically different from those who separate. We do not control for selection into the population of those who separate, and so we are limited in the inferences we can draw about the potential experiences of separation on those who remain married or cohabiting. We also cannot infer that a couple's household income would have remained at its previous level were the separation not to occur.

To interpret the observed cost of separation for individuals with particular observable characteristics as

representative of the potential costs of separating to anyone with those characteristics requires the assumption that unobservable characteristics drive the benefit of remaining married but not the cost of separation.[6]

3 Data

We use panel data from the first fifteen waves of the British Household Panel Survey (BHPS), from 1991 to 2005.[7] The first wave of this survey covered a nationally representative sample of all adults in each of around 5,000 households. This gave an initial sample of approximately 10,000 individuals. Where possible, all individuals in this initial sample have been followed since. When an original sample member (OSM) forms a new household, the new partner is interviewed while she or he remains part of that household. However, if this partner leaves the household, they are followed only if they have a child with an OSM, regardless of marital status. For this reason, the BHPS does not necessarily track both partners after a separation. All sample members who complete an interview provide wide-ranging information including incomes, demographic information and social attitudes. For more information about the BHPS data see Taylor et al (2007).

We restrict our attention to individuals who we observe undergoing a separation from their partner, considering both those who were married and cohabiting. We adopt a functional definition of separation, the point at which partners no longer live together, rather than the granting of an official divorce (in the spirit of Duncan and Hoffman 1985).[8] Where an individual has undergone more than one separation, each is treated as a separate record. In addition, we restrict attention to working age individuals (from 16 to 65 for men and from 16 to 60 for women), and exclude individuals residing in Scotland and Northern Ireland due to their differing legal regimes.

This leaves us with a sample of 281 male and 389 female separations from marriage, and 281 male and 410 female separations from cohabitation, where sufficient survey information is available for both the year preceding and the year succeeding separation.[9] The 799 female separations cover 659 individuals: 100 women are observed experiencing two relationship breakdowns, 17 women experience three and two women

[6] To make these counterfactual comparisons, we would need to control for selection into the separated population. This would require a variable which affects the separation probability but does not affect income. Attempts to control for selection have generally suffered either from using questionable instruments (for example, family background and relationship characteristics (Smock et al 1999)), or weak instruments, such as the sex of a firstborn child, giving very specific local treatment effects (Bedard and Deschenes 2005). We lack a strong and convincing instrument for separation and so do not attempt to answer this question.

[7] In 2006, the House of Lords ruling on Miller and McFarlane changed the basis of financial protection on divorce, although there is uncertainty about how much this change was enforced. There is not enough data to evaluate this change and so we end our data period in 2005.

[8] Separations from marriage are said to occur when an individual changes their status from 'married' to either 'separated', 'divorced' or 'living with someone'. We disregard partnerships that have ended through the death of a partner. Separations from cohabitation occur when an individual changes their status from 'living with someone' to 'never married', 'separated' or 'divorced', or their status remains 'living with someone' but the identity of that partner changes. In addition, we exclude any separations where the spouse's identity is not recorded as changing over the separation time.

[9] We do not require the separating partnership to have children, in contrast with Jenkins (2009).

experience four.[10] Since these sample sizes are large relative to previous studies, we are able to examine the differing experiences of separations from marriage and cohabitation. Moreover, in 72% of separations from marriage and 62% of separations from cohabitation, we have data for at least three years following the separation, so we are able to consider the longer term economic impact of divorce and the mechanisms which drive any recovery. The first year in which a couple is observed to be separated is denoted as $t = 0$, and all observations of separation are pooled over the sample.

One potential weakness of our dataset is attrition of members of separating couples. We see more female separations than male separations, and more separations from cohabitations than marriages. If there is differential attrition related to individual characteristics that drive income paths or living arrangements then our results will be biased. This problem is discussed in appendix A, where we show that there is little correlation between observable characteristics and attrition: however, we cannot test for attrition based on unobservable characterisitcs.

We measure economic well-being using household income. The BHPS allows us to split household income into individual labour, benefit and other income. Our variables of interest are household income, and the labour and benefit income of the individual undergoing the separation (all deflated to 1991 prices using the retail price index). We assume that income within the household is pooled before separation and so household income for each individual at time $t = -1$ is total household income.[11] To control for the extra cost of having a larger household, household income is adjusted using the McClements (before housing costs) equivalence scale. Rather than just converting household income to income per head, this adjustment acknowledges the economies of scale inherent in maintaining a household and differing costs of individuals of different ages. For example, adding a spouse to a household of one requires only the addition of 67% of the existing resources to keep the standard of living constant. The weights for children vary with their age. Clearly, as the economies of scale from sharing a household increase, the implied cost of divorce (and the removal of the economies of scale) will increase. As pointed out by Jarvis and Jenkins (1999), income changes for men following separation are likely to be more sensitive to this since their change in household size on divorce is generally greater.

One difficulty with equivalising post-separation income is that individuals may be making payments to households which they are no longer part of. Our equivalisation factors ignore this and assume that all income is spent within the household that the individual lives in. Ideally we would net off the transfers from the individuals' income before making the within-household equivalisation, but data on the amount of these

[10] Of the 100 women who separate twice, 42 experience two cohabitations, 17 two marriages and the remainder one marriage and one cohabitation. Six women seaparate from three cohabitations, eight from two cohabitations and one marriage, and three from two marriages and one cohabitation. One women separates from four cohabitations and one from two cohabitation and two marriages.

[11] If this were not the case and, for example, a woman had a less than 50% share of household income before separation, they may actually improve their income on separation. We would need to consider bargaining within the household to allow for this (eg. Manser and Brown 1980).

transfers is poor. Instead we control for the presence of such transfers in our regression analysis below.

We use various additional socioeconomic controls, including age, race, education level, home ownership, asset income and whether there are young children in the household. We attempt to capture differences in attitudes using a family values index constructed from an individual's response to various statements such as "the family suffers if a woman works full time" and "single parents are as good as couples", and mental health or happiness level is captured using an individual's score on the General Health Questionnaire (GHQ).

4 Differing Experiences: Descriptive Statistics

In this section, we present the raw data on differences in income through separation for cohabitees and married couples. To understand these differences, we report the differences in observable characteristics between those who are married and those who are cohabiting. We then control for these differences in observables in a simple regression framework. The next section matches explicitly cohabiting women to married women to examine the extent of and reasons for the differences.

Figures 1 and 2 show the income loss on separation for men and women, distinguishing by the marital status of the relationship. Figure 1 shows the path of total household income (including income from all members of the household the individual resides in during that year) through separation, while Figure 2 shows the difference between men and women explicitly.[12] We show both equivalised and total household income.

The striking point about Figure 1 is the fall in income for women on separation. For those divorcing, household income falls by about 70%, and equivalised income by about 50%. The second point is that for women, separation from cohabitation is associated with a smaller fall in household income and in equivalised income than separation from marriage. Averaging these numbers across type of separation gives numbers in line with those in Jenkins (2009). For men, there is little difference between separation from marriage and from cohabitation, and relatively little change to income or equivalised income.

The difference in income between men and women on separation is shown more starkly in figure 2. The difference is larger in equivalised income because it is more common for children to remain with their mother. The difference is less marked for separation from cohabitation than for divorce, and the difference declines over time as women's household income increases.

The obvious question raised by these differences in the raw data is to what extent are these differences driven by different characteristics of those who are married compared to those who are cohabiting, and indeed by the different characteristics of those who divorce from those who separate from cohabitation. Table 1 shows these differences in observable characteristics. For our sample of separating women, married women

[12] As discussed above, the panel is unbalanced and there is attrition of the sample post-separation. The numbers in the figure are the raw averages across all observations for that "time from separation."

Figure 1: Household income from time of separation

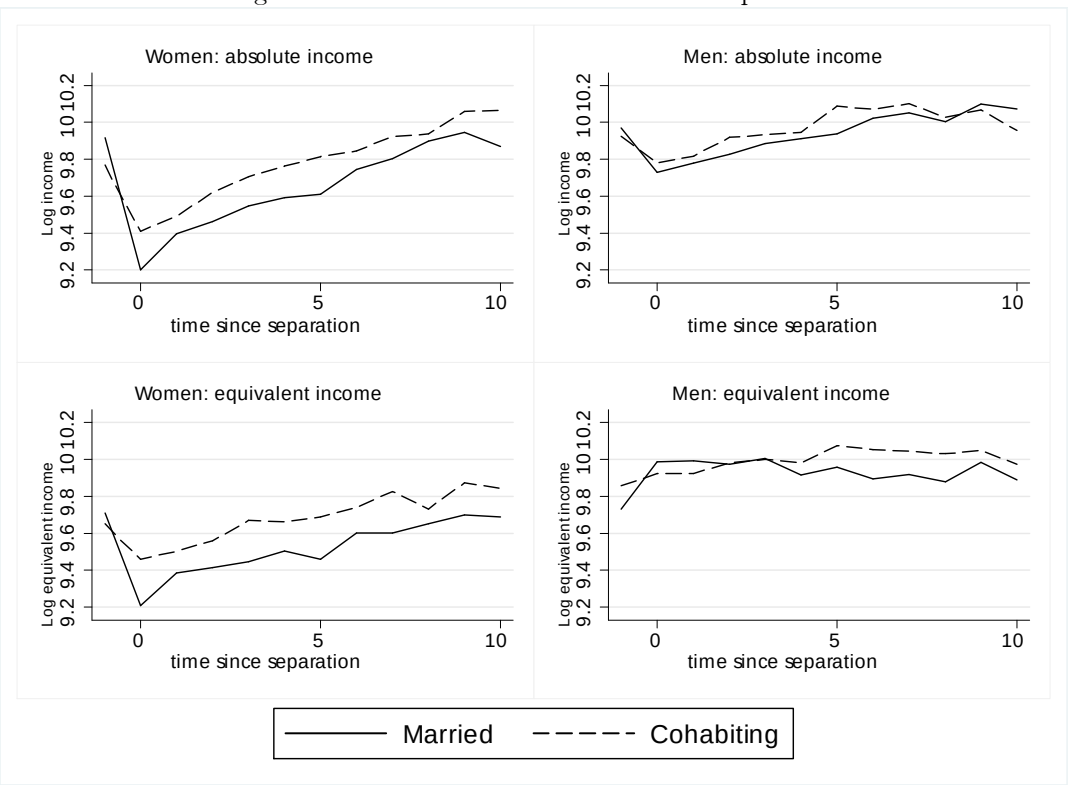
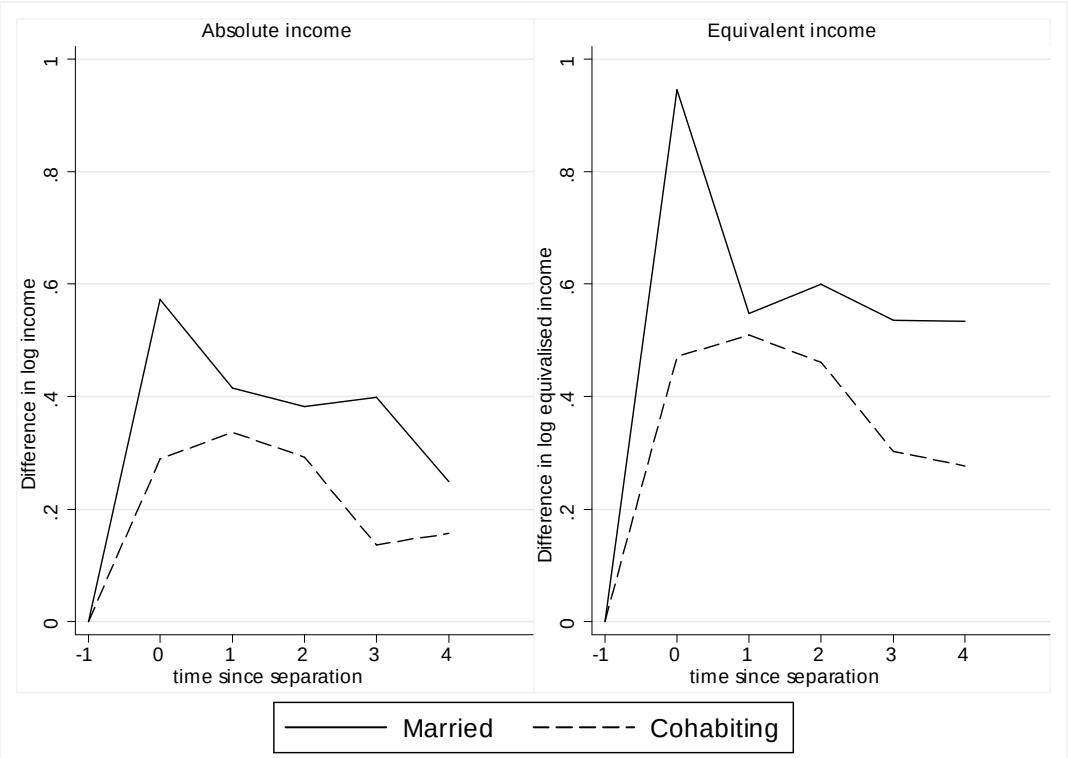


Figure 2: Difference in male and female income following separation



are older, have more children, have been in their relationship for longer, have greater household income and assets, and are more likely to be home owners. Similar differences exist for our sample of separating men.

Table 2 controls for these factors in regressing the change in log equivalised income on the time of separation. Controls are split into those which are in place at the time of separation and those which are subsequent to the separation, and the regressions are estimated separately for married and cohabiting women. Columns 1 and 3 show the correlations of characteristics prior to separation (at time $t = -1$) with the change in equivalised household income experienced. Controlling for observable characteristics does not remove the key difference observed in the raw data: women who are married suffer a 55% fall in equivalised income on separation, whereas those who are cohabiting suffer a 23% fall.[13] Formerly cohabiting women suffer a larger income fall if they have children at the time of separation, or previously lived in a household with asset income, whilst married women suffer smaller falls in income as their relationship tenure increases. Married women also experience a recovery in household income of around 21% one year after separation.

Columns 2 and 4 additionally include controls for characteristics that vary over time and can be controlled by women going through relationship breakdown. This allows us to examine what actions mitigate the income falls experienced. Repartnering appears to be a key mechanism for recovery, increasing equivalised household income by 46% and 31% for previously-married and cohabiting women respectively. Labour market participation also appears to aid recovery, particularly where the woman was not in the labour market before separation. Income falls are worse for those with children, particularly those who have children after their relationship has broken down.

Due to the importance of repartnering, columns 2 and 4 of table 2 include regressors for the different household structures that might exist. These include whether the individual is living with a partner, with another adult who is related to them, or with an unrelated adult. Recovery is helped by living in households with more than one adult. We explore the differences in behaviour following separation in more detail in section 5 below.

5 Explaining Financial Losses and Recovery

The raw data shown above suggests that the impact of relationship breakdown for married women is greater than for cohabiting women. However, it is also clear that married and cohabiting women have different observable characteristics, as we would expect from the discussion in section 2. In this section, we analyse this difference, and the reasons behind it, using propensity score matching.

We aim to estimate the effect, in terms of total household income, of separating from a cohabiting relationship relative to separating from a marriage. If ΔY_{1i} is the change in income for individual i when

[13] This is confirmed to be statistically significantly different in an estimation pooling married and cohabiting women.

Table 1: Descriptive statistics in the period before separation

	Women		Men	
Variable	Married	Cohabiting	Married	Cohabiting
Age	36.09	27.92	39.07	30.79
	(8.82)	*(8.37)*	*(9.61)*	*(9.36)*
Number of children	1.31	0.77	1.25	0.52
	(1.21)	*(0.98)*	*(1.14)*	*(0.82)*
Young child	0.21	0.19	0.19	0.17
	(0.41)	*(0.39)*	*(0.39)*	*(0.38)*
Any child	0.64	0.29	0.63	0.31
	(0.48)	*(0.45)*	*(0.48)*	*(0.46)*
Education	2.48	2.83	2.80	2.89
	(1.58)	*(1.52)*	*(1.65)*	*(1.58)*
GHQ score	0.40	0.35	0.36	0.32
	(0.19)	*(0.18)*	*(0.18)*	*(0.15)*
Family values index	0.15	0.12	0.22	0.16
	(0.18)	*(0.15)*	*(0.22)*	*(0.17)*
Relationship tenure	12.98	3.81	13.59	3.84
	(8.61)	*(4.15)*	*(8.81)*	*(4.38)*
Year separated	1998	1999	1998	1999
	(3.88)	*(3.86)*	*(3.90)*	*(3.93)*
Nonmarital cohabitation	0.78	1.00	0.78	1.00
	(0.42)	*(0.00)*	*(0.42)*	*(0.00)*
Labour force participation	0.69	0.67	0.87	0.83
	(0.46)	*(0.47)*	*(0.34)*	*(0.38)*
Hours worked per week	18.25	21.71	26.00	27.73
	(16.22)	*(17.77)*	*(20.37)*	*(18.39)*
Second job held	0.12	0.09	0.11	0.11
	(0.32)	*(0.29)*	*(0.31)*	*(0.31)*
Labour income (£)	6,312	5,949	14,126	11,624
	(8,209)	*(6,747)*	*(10,370)*	*(9,252)*
Benefit income (£)	1,162	1,276	667	431
	(1,589)	*(2,154)*	*(1,864)*	*(1,216)*
Household income (£)	24,101	20,265	24,756	22,416
	(16,159)	*(14,409)*	*(17,813)*	*(13,747)*
Equivalised income (£)	19,626	19,558	19,889	22,021
	(13,788)	*(16,267)*	*(13,948)*	*(17,997)*
Asset income > £100	0.12	0.07	0.21	0.11
	(0.33)	*(0.26)*	*(0.41)*	*(0.31)*
Home owner	0.74	0.48	0.76	0.54
	(0.44)	*(0.50)*	*(0.42)*	*(0.50)*
Share of total income	0.34	0.40	0.63	0.57
	(0.22)	*(0.24)*	*(0.23)*	*(0.23)*
Observations	389	410	281	301

1. Descriptive statistics for BHPS sample in the period before separation occurs

2. Standard deviations in parentheses 3. Education is average of a scale from 0 (no qualification) to 6 (higher degree)

Table 2: Regression results: Change in women's log equivalised household income

	Married		Cohabiting	
	(1)	(2)	(3)	(4)
Characteristics at relationship breakdown				
$t = -1$	-0.022	-0.021	**0.104**	0.063
	(0.029)	*(0.029)*	*(0.052)*	*(0.050)*
$t = 0$	**-0.551**	**-0.681**	**-0.230**	**-0.209**
	(0.047)	*(0.051)*	*(0.049)*	*(0.050)*
$t = 1$	**0.209**	**0.098**	0.070	0.061
	(0.041)	*(0.043)*	*(0.043)*	*(0.044)*
Has a child	-0.006	**0.036**	**-0.040**	0.007
	(0.009)	*(0.013)*	*(0.012)*	*(0.018)*
Home owner	-0.009	-0.020	-0.006	**-0.038**
	(0.010)	*(0.017)*	*(0.010)*	*(0.018)*
Asset income > £100	0.000	-0.001	**-0.028**	-0.026
	(0.013)	*(0.020)*	*(0.013)*	*(0.019)*
Labour force participation	0.010	**-0.037**	0.001	**-0.063**
	(0.010)	*(0.014)*	*(0.012)*	*(0.016)*
Premarital cohabitation	0.000	-0.014		
	(0.009)	*(0.011)*		
Age	0.004	0.004	-0.007	-0.004
	(0.005)	*(0.005)*	*(0.006)*	*(0.008)*
Age at separation	-0.005	-0.003	0.002	0.007
	(0.003)	*(0.003)*	*(0.004)*	*(0.004)*
Relationship tenure	0.001	0.001	0.001	-0.001
	(0.001)	*(0.001)*	*(0.001)*	*(0.001)*
Characteristics after relationship breakdown				
Repartners		**0.462**		**0.313**
		(0.049)		*(0.061)*
Lives with partner		-0.000		**0.140**
		(0.021)		*(0.027)*
Lives with related adults		0.067		**0.167**
		(0.064)		*(0.042)*
Lives with unrelated adults		**0.278**		0.056
		(0.063)		*(0.057)*
Receives alimony		0.032		**0.083**
		(0.021)		*(0.032)*
Makes transfer		0.047		-0.043
		(0.048)		*(0.064)*
Has a child*		**-0.072**		**-0.103**
		(0.017)		*(0.037)*
Labour force participation*		**0.100**		**0.087**
		(0.020)		*(0.034)*
Observations	4737	4737	4470	4470

1. Standard errors clustered by individual in parentheses. Bold indicates significance at 5% level
2. Other controls: other time since separation dummies, age squared, education, year of separation
3. Has a child* and Labour force participation* are time varying rather than fixed values reflecting the status at $t = -1$

cohabiting, and ΔY_{0i} is the change in income for that individual when separating from marriage, we wish to estimate:

$$\theta_i = \Delta Y_{1i} - \Delta Y_{0i} \tag{1}$$

However, ΔY_{0i} is unknown for cohabiting women, and cohabitation is not randomly assigned across women (see table 1 for the differences in characteristics between the two groups). This means that a simple analysis of the difference in means between the two groups will be biased. For example, former female cohabitants may experience smaller falls in income than those who were married because they are, on average, younger, and younger women tend to earn a larger share of household income.

We deal with this bias by matching cohabiting women to married women with similar observable characteristics using the propensity score. ΔY_{0i} is then estimated by ΔY_{0j}, where j is a married woman with otherwise similar characteristics to i. This recovers an unbiased estimate of θ_i if the conditional mean independence assumption holds: if the mean change in household income does not vary between married and cohabiting women once we have conditioned on the matching characteristics. Matching on the propensity score[14] allows us to match on a large set of covariates. We present results from kernel matching.[15] Results from nearest neighbour matching are similar and available on request.

An implication of the conditional mean independence assumption is that the characteristics matched on should be the same for married and cohabiting women with the same propensity score. This balancing condition is always satisfied in the analysis presented below: within blocks of the propensity score, we never reject the hypothesis that there is a difference in the mean of any matching characteristics at the 1% level.[16]

An alternative to this would be to regress the change in household income on marital status, controlling for the characteristics that we match on. This would involve the same conditional mean independence assumption we make for the matching analysis. However, matching on the propensity score allows us to impose a common support: to remove observations of married women who appear very different to the sample of cohabiting women. In addition, propensity score matching allows us to recover an average effect of cohabitation, giving equal weight to all observed cohabitees: we expect θ_i to be heterogenous. In contrast, linear regression results give a variance-weighted average of the heterogeneous effect of cohabitation (Angrist 1998).

[14] That is, the probability of cohabiting conditional on the characteristics we match on.

[15] This is implemented using the Stata programs described in Becker and Ichino (2002). This uses all married observations as controls with weights that are inversely proportional to the distance of the propensity score from the cohabiting propensity score. The estimator is

$$\theta = \frac{1}{N^{coh}} \sum_{i \in coh} \left\{ \Delta Y_i^{coh} - \frac{\sum_{j \in mar} \Delta Y_j^{mar} G(\frac{p_j - p_i}{h_n})}{\sum_{k \in mar} G(\frac{p_j - p_i}{h_n})} \right\} \tag{2}$$

[16] This is a conservative significance level: as discussed in Becker and Ichino (2002), when matching on 15 covariates, there is a 37% chance of rejecting the balancing property for a 5% significance level even if it holds true.

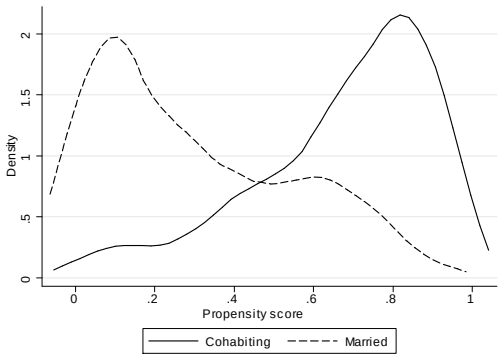


Figure 3: Kernel Density of Propensity Score for Separating from Cohabitation, by Marital Status

Table 3 reports the differences in the change of income on separation between women who were cohabiting and who were married. The raw difference shows the difference in means between formerly married and cohabiting women. These raw differences are compared to estimates using matched characteristics, with two alternative specifications of the characteristics for matching. Specification 2 matches on a broader set of characteristics than 1, including measures of family values and mental health. The differences are shown for the change in absolute household income and for the change in equivalised household income, and for the 3 years immediately following separation. After this stage, differential attrition means that the samples of married and cohabiting women are too different and so the balancing property is not satisfied.

When imposing a common support we in fact drop few observations. Whilst average characteristics are very different for women formerly married and cohabiting, there is substantial variance. This can be seen in figure 3, which shows that there is substantial overlap in the distribution of the propensity score for married and cohabiting women.[17] We remove no more than 13 observations when imposing common support.

The raw differences reflect the earlier results that the fall in income for cohabitees is much less than that for women who divorce. Matching substantially reduces the differences in the impact of separation on income, but a difference remains: the negative impact of separation on actual household income for cohabiting women is about 17% less than for married women with the broadest set of matched characteristics; and a difference of about 18% remains for equivalised income. Matching also reduces the persistence of the difference in the years after separation, although we are unable to analyse the difference beyond 2 years since by this stage differential attrition means that formerly married and cohabiting women are too different from each other and hence the balancing property is rejected.

For men, there is little difference between the income loss on separation for cohabitees and married men.

[17] The graph shows the propensity score distribution in the year immediately following separation; future years have similar distributions.

Table 3: Change in household income on separation: the difference between cohabitation and marriage

	Absolute income			Equivalised income		
Year	Raw	Matched (1)	Matched (2)	Raw	Matched (1)	Matched (2)
0	**0.3910**	**0.1881**	**0.1696**	**0.3103**	**0.2051**	**0.1782**
	(0.0713)	*(0.0934)*	*(0.0951)*	*(0.0675)*	*(0.0912)*	*(0.0860)*
1	**0.2399**	0.1198	0.1133	**0.1668**	0.1282	0.1152
	(0.0624)	*(0.1038)*	*(0.0991)*	*(0.0606)*	*(0.1013)*	*(0.0965)*
2	**0.2451**	0.0628	0.0762	0.1325	0.0598	0.0694
	(0.0722)	*(0.0978)*	*(0.1047)*	*(0.0711)*	*(0.1005)*	*(0.1047)*

1. Columns 1 and 4 show the difference between previously cohabiting and married women in the mean change in household income. Columns 2, 3, 5 and 6 report kernel matching estimates of this difference. Common support imposed (for matching and raw differences), number of observations dropped: year 0, 5; year 1, 8; year 2, 8.
2. Specification 1 matched on age, education, labour force participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation. Specification 2 additionally matched on score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
3. Standard errors in parentheses. Bold indicates significance at 5% level.

Any slight difference that exists in the raw data shown in figure 1 disappears when matching is considered.[18]

5.1 Support mechanisms on relationship breakdown

The question this raises is why the difference in the effect of separation on cohabiting women and married women should remain after matching. We analyse how much of the difference is driven by differences in the response of the two types of women to becoming separated, and to differences in the sources of income available to each. These differences can be interpreted as differences in access to self- or social-support mechanisms. We consider differences in the receipt of benefit income, in labour income and in whether the woman lives alone after separation.

Table 4 reports differences in the receipt of benefit income for women who cohabited compared to being married. In the raw data, divorced women receive more income via benefits and this persists in the years after separation. After matching on observable characteristics, this difference disappears: there is no significant difference in the receipt of benefit income. The main reason for the higher benefit income observed for divorced women in the raw difference is because divorced women have more children than women who had been cohabiting.

Table 5 reports differences in various measures of labour market outcomes after separation, looking at the change in labour income, at participation rates, at hours worked for participants and changes in hours worked after separation. Married and cohabiting women appear very similar in terms of labour market outcomes in the raw data. After matching on observable characteristics, it appears that cohabiting women

[18] We do not report these results, but they are available on request.

Table 4: Receipt of benefits after separation: the difference between cohabitation and marriage

	Benefits	
Year	Raw	Matched
0	**-0.2047**	0.0435
	(0.0382)	*(0.0635)*
1	**-0.1577**	0.0295
	(0.0410)	*(0.0657)*
2	**-0.1270**	0.0036
	(0.0424)	*(0.0700)*

1. Column 1 shows the difference between previously cohabiting and married women in the incidence of benefit receipt. Column 2 reports kernel matching estimates of this difference, matched on age, education, labour force, participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation, score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
2. Standard errors in parentheses. Bold indicates significance at 5% level.

participate less than married women, and may increase their hours worked less than married women. Neither differences in access to benefits nor labour market choices explains the difference in changes to household income.

Table 5: Labour supply and income after separation: the difference between cohabitation and marriage

	Change in labour inc.		Participation		Hours worked		Change in hours	
Year	Raw	Matched	Raw	Matched	Raw	Matched	Raw	Matched
0	0.0312	0.0814	-0.0067	**-0.1184**	2.5671	-2.5320	-1.2819	-1.3241
	(0.0798)	*(0.0951)*	*(0.0371)*	*(0.0367)*	*(1.4460)*	*(1.9632)*	*(1.0913)*	*(1.7946)*
1	0.1758	0.0271	-0.0317	-0.0900	1.4907	-4.4310	-2.6558	**-4.1880**
	(0.1168)	*(0.1152)*	*(0.0399)*	*(0.0613)*	*(1.5310)*	*(2.2741)*	*(1.2673)*	*(2.1011)*
2	0.1631	0.2535	0.0245	-0.0165	1.6232	-2.2135	-2.2488	-0.0567
	(0.1281)	*(0.1455)*	*(0.0426)*	*(0.0722)*	*(1.6047)*	*(2.3334)*	*(1.4658)*	*(2.4906)*

1. Raw denotes the difference between previously cohabiting and married women in outcomes. Matched denotes kernel matching estimates of this difference, matched on age, education, labour force, participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation, score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
2. Standard errors in parentheses. Bold indicates significance at 5% level.

Another indirect way that women can maintain their household income after separation is through their choice of living arrangements. In table 6 we report living arrangements after separation. Among both men and women there are large differences in behaviour after separation, with the cohabiting being far more likely to be living with related or unrelated adults. In table 7, we consider explicitly the raw differences and matched differences in behaviour for married and cohabiting women after separation. In particular,

we consider differences in the fraction living in a household with at least one other adult, and, given that they are living with another adult, the differences in the fraction not having a new partner (ie. living with family or roommates). In the raw data, compared to those divorcing, women separating from a cohabitation are more likely to be living with another adult, and that adult is less likely to be a new partner: they are more likely to live with family. With the matched estimates, the difference in the propensity to live alone disappears, but formerly cohabiting women are even more likely to live in a household with no partner but other adults. So the key difference is that married women who do not live alone are more likely to repartner, whereas cohabiting women who do not live alone are more likely to be living with family or roommates.

Table 6: Living arrangements at $t = 1$

	Repartner	Related	Unrelated	Alone
Men	0.353	0.098	0.079	0.470
Married	0.325	0.043	0.039	0.593
Cohabiting	0.379	0.146	0.115	0.360
Women	0.295	0.083	0.052	0.570
Married	0.319	0.023	0.020	0.638
Cohabiting	0.271	0.143	0.085	0.501

Living arrangements one year after separation: repartnered, living with related adults, living with unrelated adults, or living alone.

Table 7: Repartnering and living arrangements: cohabitation versus marriage

	Live with others		No partner (given living with others)	
Year	Raw	Matched	Raw	Matched
0	**0.0872**	-0.0913	**0.3524**	**0.4676**
	(0.0388)	*(0.0682)*	*(0.0664)*	*(0.1296)*
1	**0.1130**	0.0628	**0.3385**	**0.3714**
	(0.0429)	*(0.0728)*	*(0.0592)*	*(0.1008)*
2	0.0733	-0.0427	**0.1329**	**0.1576**
	(0.0457)	*(0.0720)*	*(0.0475)*	*(0.0562)*

1. Column 1 shows the difference in outcome between previously cohabiting and married women. Column 2 reports kernel matching estimates of this difference, matched on age, education, labour force, participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation, score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
2. Standard errors in parentheses. Bold indicates significance at 5% level.

Living arrangements appear to be a key explanation for the differences in household income changes experienced by married and cohabiting women on relationship breakdown, with cohabiting women being far more likely to rely on their family for financial support. This result is made even stronger after controlling

for a wide range of observable characteristics. There are several mechanisms which might result in this differential reliance on social networks. First, it might be constraints imposed by the different legal and policy treatments of divorce and separation from cohabitation. Importantly, in England and Wales there is no legal protection for former cohabitants. In contrast, when a married couple divorces, both partners will have a claim on the couple's joint assets, namely the marital home. So a formerly married woman might be expected to have greater access to their former home than a woman who was cohabiting, and this might crowd out family support. One way to test this hypothesis is to consider whether cohabiting women are more likely to move house after relationship breakdown. Table 8 shows the raw and matched comparisons. Around 50% of both married and cohabiting women move house on separation: there is no significant difference in either the raw data or after matching on observable characteristics. It does not appear that it is legal protection which makes married women less likely to rely on family for financial support.

Table 8: Moving house: the difference between cohabitation and marriage

	Moved house	
Year	Raw	Matched
0	0.0403	0.0298
	(0.0409)	*(0.0739)*
1	0.0733	0.0078
	(0.0434)	*(0.0751)*
2	0.0789	-0.0093
	(0.0445)	*(0.0698)*

1. Column 1 shows the difference between previously cohabiting and married women in the incidence of living in a different house than prior to relationship breakdown. Column 2 reports kernel matching estimates of this difference, matched on age, education, labour force, participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation, score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
2. Standard errors in parentheses. Bold indicates significance at 5% level.

An alternative explanation is that this difference in living arrangments may reflect differences in the social support networks available to women on relationship breakdown: there may be selection of women who no longer wish to rely on their extended family into marriage, and so if their relationship breaks down they are less likely to return. Women who marry may also be expressing a stronger preference for being in a coresidential relationship, and so repartner quickly if their marriage breaks down. Marriage itself may change the nature of the social support networks, both in terms of an individual's desire to rely on these methods and in terms of the attitudes of those within the networks: marriage may be a watershed moment in a woman's life which separates them from their extended family.

Income Sharing within the Household One potential difficulty with interpreting the result that cohabiting women are supported by moving in with other adults is that our analysis assumes complete income pooling within each household, and this enables the calculation of equivalised household income. It is not clear this assumption is reasonable when, say, a woman goes back to live with her parents after separation. An alternative extreme would be to include only the income of the individual and any partner who is living in the house. This is implicitly assuming that there is no income sharing at all with extended family living in the house or with any unrelated adults.[19]

Comparable to table 2, table 9 presents regression results with equivalised household income as the dependent variable but when only the income of the individual and his or her partner are included. Relative to the broader measure of income, this shows a bigger impact of separation for cohabiting women and further, that married and cohabiting women experience similar impacts. Repartnering is as important for women who were married as it is for those who cohabited, and other living arrangements do not aid recovery.

Analogously to table 3, table 10 shows the difference between cohabitees and married women in the fall in their income on separation. The key point is that when we include only an individual's own income and the income of their partner, there is no difference in the income loss on separation for those splitting from marriage and for those splitting from cohabitation. This reinforces the conclusion that the difference in the financial impact of relationship breakdown is due to differences in access to other networks of support rather than to the individual behaviour or characteristics of the parties.

6 Conclusions

The aim of this paper was to explain the observed difference in income loss on separation for those who were cohabiting compared to those who were married. In the raw data, women who were cohabiting lose less on separation than those who were married. This is partly due to differences in observable characteristics, such as more children being present in marriage than in cohabitation, and married women who separate being older. However, even when we compare income loss having matched on age, children and other characteristics, the income loss for women separating from marriage is found to be greater. The reason is that cohabitees who separate are more likely to move in with other adults who are not their (new) partners and it is these other adults who are, perhaps, providing financial support. This exposes a difference in the social support mechanisms used by married and cohabiting women when their relationships break down: cohabiting women are more likely to rely on their families for support, and to return to live with them after separation.

This support provided by the families of cohabitees arises if there is income sharing across extended family members who live together. If the only income available to the separated women is their own and the income

[19] Indeed, the implicit assumption in our analysis has been that prior to separation there was complete income sharing.

Table 9: Regression results: Change in women's log equivalised household income, own and partner's income only

	Married		Cohabiting	
	(1)	(2)	(3)	(4)
Characteristics at relationship breakdown				
$t = -1$	-0.006	-0.009	0.083	0.053
	(0.030)	*(0.030)*	*(0.058)*	*(0.056)*
$t = 0$	**-0.605**	**-0.709**	**-0.513**	**-0.545**
	(0.051)	*(0.058)*	*(0.059)*	*(0.060)*
$t = 1$	**0.260**	**0.162**	0.090	0.038
	(0.043)	*(0.045)*	*(0.054)*	*(0.052)*
Has a child	0.005	**0.027**	**-0.051**	-0.026
	(0.012)	*(0.013)*	*(0.016)*	*(0.018)*
Home owner	-0.015	-0.020	-0.027	**-0.058**
	(0.012)	*(0.018)*	*(0.016)*	*(0.023)*
Asset income > £100	0.006	-0.008	0.008	-0.005
	(0.013)	*(0.020)*	*(0.022)*	*(0.023)*
Labour force participation	-0.001	**-0.050**	0.007	**-0.051**
	(0.011)	*(0.015)*	*(0.018)*	*(0.021)*
Premarital cohabitation	0.011	0.007		
	(0.010)	*(0.012)*		
Age	-0.014	**-0.015**	**-0.057**	**-0.060**
	(0.007)	*(0.007)*	*(0.011)*	*(0.011)*
Age at separation	-0.003	-0.003	-0.004	-0.003
	(0.004)	*(0.004)*	*(0.005)*	*(0.005)*
Relationship tenure	0.001	0.002	0.001	-0.001
	(0.001)	*(0.001)*	*(0.001)*	*(0.002)*
Characteristics after relationship breakdown				
Repartners		**0.426**		**0.428**
		(0.054)		*(0.063)*
Lives with partner		-0.008		0.004
		(0.019)		*(0.028)*
Lives with related adults		0.120		-0.056
		(0.109)		*(0.053)*
Lives with unrelated adults		-0.123		-0.117
		(0.083)		*(0.060)*
Receives alimony		**0.068**		**0.090**
		(0.024)		*(0.044)*
Makes transfer		-0.108		-0.023
		(0.099)		*(0.042)*
Has a child*		**-0.049**		**-0.074**
		(0.016)		*(0.028)*
Labour force participation*		**0.119**		**0.123**
		(0.024)		*(0.032)*
Observations	4117	4117	3703	3703

1. Standard errors clustered by individual in parentheses. Bold indicates significance at 5% level
2. Other controls: other time since separation dummies, age squared, education, year of separation
3. Has a child* and Labour force participation* are time varying rather than fixed values reflecting the status at $t = -1$

Table 10: Change in own and partner's income: the difference between cohabitation and marriage

	Equivalised income			
	All household income		Own and partner income	
Year	Raw	Matched	Raw	Matched
0	**0.3103**	**0.1782**	**0.2192**	0.0311
	(0.0675)	*(0.0860)*	*(0.0754)*	*(0.0782)*
1	**0.1668**	0.1152	0.1255	0.0769
	(0.0606)	*(0.0965)*	*(0.0676)*	*(0.0753)*
2	**0.1325**	0.0694	0.1245	0.0607
	(0.0711)	*(0.1047)*	*(0.0917)*	*(0.1092)*

1. Raw denotes the difference between previously cohabiting and married women in outcomes. Matched denotes kernel matching estimates of this difference, matched on age, education, labour force, participation, hours worked, previous household income, previous benefit receipt, number of children, presence of young children, home ownership, relationship tenure and year of separation, score in GHQ survey, family values index, previous share of household income contributed and previous change in household income.
2. Standard errors in parentheses. Bold indicates significance at 5% level.

of any new partner, then the difference in income loss disappears: it is the choice of living arrangements that drives the difference in the impact of separation on income cohabiting and married women.

The different living arrangments after separation cannot be explained by cohabitants being more likely to have to move house due to a lack of legal protection. However, the legally privileged institution of marriage may be responsible for this difference: once a woman marries, she is seen to not require the support of her family, instead being able to rely on those legal protections, and so by marrying she changes the nature of those networks. Alternatively, the difference in living arrangements may reflect the unobserved characteristics of married and cohabiting women: women who marry may be displaying a preference for not relying on their extended family, or for relying on a partner.

On the other hand, if family support networks are more available to those who are cohabiting rather then to those married, it is more costly to separate from marriage, and we will observe fewer married couples separating for a given relationship quality, and average income loss will be greater for those married women who do choose to divorce.

References

[1] Aassve, Arnstein, Gianni Betti, Stefano Massuco, and Letizia Mencarini, "Marital disruption and economic well-being: a comparative analysis," Journal of the Royal Statistical Society-Series A, 2007, 170 (3).

[2] Angrist, Joshua D., "Estimating the Labor Market Impact of Voluntary Military Service Using Social Security Data on Military Applicants", Econometrica, 1998, 66, 249–288.

[3] Avellar, S. and P.J. Smock, "The Economic Consequences of the Dissolution of Cohabiting Unions.," Journal of Marriage and Family, 2005, 67 (2), 13.

[4] Becker, Sascha O. and Andrea Ichino, "Estimation of average treatment effects based on propensity scores," The Stata Journal, 2002, 2 (4), 358–377.

[5] Bedard, Kelly and Olivier Deschenes, "Sex preferences, marital dissolution, and the economic status of women," Journal of Human Resources, 2005, 40 (2), 411.

[6] Bianchi, S M, L Subaiya, and J R Kahn, "The gender gap in the economic well-being of nonresident fathers and custodial mothers.," Demography, May 1999, 36 (2), 195–203.

[7] Cobb-Clark, Deborah A. and Thomas F Crossley, "Econometrics for evaluations: an introduction to recent developments," The Economic Record, 2003, 79 (247), 491–511.

[8] Duncan, Greg J. and Saul D. Hoffman, *Economic consequences of marital instability*, Chicago, IL: National Bureau of Economic Research, 1985.

[9] Fisher, H, "Divorce property division laws and the decision to marry or cohabit," Journal of Law, Economics and Organization, forthcoming.

[10] Fisher, H. and H. Low, "Who wins, who loses and who recovers from divorce?," in "Sharing Lives, Dividing Assets: An Interdisciplinary Study" edited by Jo Miles and Rebecca Probert. Hart Publishing (2009)

[11] Gadalla, Tahany M., "Impact of Marital Dissolution on Men's and Women's Incomes: A Longitudinal Study," Journal of Divorce and Remarriage, 2009, 50 (1), 55–65.

[12] Gray, Matthew and Bruce Chapman, "Relationship break-down and the economic welfare of Australian mothers and their children," Australian Journal of Labour Economics, 2007, 10 (4), 253–277.

[13] Haskey, J., "Cohabitation in Great Britain: Past, present and future trends—and attitudes." Population Trends, 2001, 96, 25-32

[14] Jarvis, Sarah and Stephen P. Jenkins, "Marital splits and income changes: evidence from the British Household Panel Survey," Population Studies, 1999, 53 (2).

[15] Jenkins, Stephen P., "Marital splits and income changes over the longer term," in M. Brynin and J. Ermisch. Changing Relationships. London: Routledge, 2009.

[16] Manser, Marilyn and Murray Brown, "Marriage and Household Decision-Making: A Bargaining Analysis," International Economic Review, February 1980, 21 (1).

[17] Manting, Dorien and Anne Marthe Bouman, "Short- and Long-Term Economic Consequences of the Dissolution of Marital and Consensual Unions. The Example of the Netherlands," European Sociological Review, 2006, 22 (4), 413–429.

[18] McKeever, M. and N.H. Wolfinger, "Reexamining the economic costs of marital disruption for women," Social Science Quarterly, 2002, 82 (1).

[19] McManus, P.A. and T.A. DiPrete, "Losers and winners: The financial consequences of separation and divorce for men," American Sociological Review, 2001, 66 (2).

[20] Miles, J. and Probert, R, "Sharing Lives, Dividing Assets: An Interdisciplinary Study", Hart Publishing 2009

[21] Rosenbaum, Paul R. and Donald B. Rubin, "The Central Role of the Propensity Score in Observational Studies for Causal Effects," Biometrika, 1983, 70 (1), 41–55.

[22] Seltzer, Judith A., "Cohabitation in the United States and Britain: Demography, Kinship, and the Future," Journal of Marriage and Family, 2004, 66,921-928.

[23] Smock, P.J., W.D. Manning, and Sanjiv Gupta, "The effect of marriage and divorce on women's economic well-being," American Sociological Review, 1999, 64 (6).

[24] Taylor, Marcia Freed, John Brice, Nick Buck, and Elaine Prentice-Lane, "British Household Panel Survey User Manual Volume A: Introduction, Technical Report and Appendices," 2007.

[25] Uhrig, S. C. Noah, "The Nature and Causes of Attrition in the British Household Panel Survey," ISER Working Paper, 2008, No. 5.

[26] Uunk, W, "The Economic Consequences of Divorce for Women in the European Union: The Impact of Welfare State Arrangements," European Journal of Population, 2004, 20, 251–285.

[27] Voena, A, "Yours, mine and ours: do divorce laws affect the intertemporal behaviour of married couples?", 2010.

A Attrition

Since each separation is between a male and a female, we would expect equal numbers of male and female separations in our data. We actually see more female separations than male separations since men are more likely to attrit than women, partly reflecting the higher attrition rate of men more generally.[20] If this differential attrition is related to characteristics which drive income paths or living arrangements then it will bias our results on the financial impact of separation for men versus women. In particular, if men with particularly bad outcomes are more likely to attrit whilst women with bad outcomes are not, then we would estimate that women suffer more than men on separation.[21]

We see more separations from cohabitation than from marriage and it is unclear whether this reflects differential attrition: whilst there are more married than cohabiting couples in the population, cohabitations are also more likely to break down. If there is differential attrition for individuals previously cohabiting and married and it is related to income processes and living arrangements, then again this would bias our estimates.

We attempt to get an impression of the extent of the bias we might face due to attrition by considering the sample of individuals who respond at time $t = -1$, giving sufficient survey responses to be eligible for inclusion in our sample, and are eligible to respond at time $t = 0$.[22] This excludes temporary sample members who are ineligible to be followed after separation. 55 married men (16%) and 20 married women (5%) attrit, whilst 41 cohabiting men (12%) and 8 cohabiting women (2%) do.[23] However, inclusion in this analysis is conditional on providing sufficient information in the year preceding separation and there are 233 further individuals who we know experienced a separation but do not provide detailed survey answers in the period before separation. Since we do not observe their characteristics, we cannot include them when anaylsing attrition.

We run a probit regression with the dependent variable 'attrits' for these sample. Results are shown in table 11. We find that attrition is predicted by a higher family values index score and year of separation for cohabiting women – later separations are slightly less likely to attrit – and all those who attrit have no asset income (this is a perfect predictor so omitted from the probit analysis). However here the attrition rate is very low. Attrition for cohabiting men is less likely the more children they have and the more benefit income they receive. Overall, the low correlation between observable characteristics at time $t = -1$ and future

[20] Higher attrition of men than women is seen in many longitudinal studies (Uhrig 2008)

[21] We gain comfort that our results are not biased in this way by performing our analysis just on a population in which we observe both members of a separating couple. Doing this does not alter our conclusions but reduces the time period over which we can draw firm conclusions (results available on request).

[22] So in all cases at least one member of the separating couple responds at time $t = 0$ – otherwise we do not know if a couple has separated and attritted, or just attritted. In addition we are not considering individuals who we know did separate but did not provide a full interview including labour force and income data in the year preceding separation.

[23] The attrition rate appears lower for cohabiting couples than for married couples since more members of cohabiting couples which breakdown are temporary sample members – 29% versus 8% (due to being more recent relationships (not two OSMs) or having no children) and so not eligible to be followed.

attrition gives some confidence that the results presented below are not biased due to attrition. However, attrition may be related to unobservable characteristics that are not captured by our observed variables, and we cannot test for this.

Table 11: Predictors of attrition

	(1) Mar. Women	(2) Coh. Women	(3) Mar. Men	(4) Coh. Men
Age	-0.003	-0.000	-0.002	-0.001
	(0.002)	*(0.000)*	*(0.004)*	*(0.002)*
Number of children	-0.006	-0.000	0.031	**0.072**
	(0.009)	*(0.001)*	*(0.025)*	*(0.023)*
Young child	0.007	0.007	0.044	0.015
	(0.027)	*(0.011)*	*(0.076)*	*(0.046)*
Any child	-0.003	0.031	0.007	-0.025
	(0.020)	*(0.053)*	*(0.061)*	*(0.045)*
Education	-0.006	-0.000	-0.008	-0.017
	(0.005)	*(0.001)*	*(0.013)*	*(0.010)*
GHQ	-0.060	-0.005	-0.015	0.045
	(0.041)	*(0.008)*	*(0.110)*	*(0.095)*
Family values	0.005	**0.005**	**-0.254**	0.155
	(0.034)	*(0.009)*	*(0.104)*	*(0.081)*
Tenure	0.002	-0.000	0.002	-0.001
	(0.002)	*(0.000)*	*(0.004)*	*(0.004)*
Year of separation	-0.001	**-0.000**	-0.007	-0.004
	(0.002)	*(0.000)*	*(0.005)*	*(0.004)*
Labour force participation	0.014	0.001	0.007	0.076
	(0.019)	*(0.002)*	*(0.082)*	*(0.029)*
Hours worked	0.001	-0.000	-0.001	0.001
	(0.001)	*(0.000)*	*(0.001)*	*(0.001)*
Has second job	-0.002	0.001	0.011	0.074
	(0.021)	*(0.003)*	*(0.069)*	*(0.070)*
Labour income	**-0.000**	-0.000	0.000	-0.000
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Benefit income	-0.000	-0.000	0.000	**0.000**
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Equivalised income	0.000	-0.000	-0.000	0.000
	(0.000)	*(0.000)*	*(0.000)*	*(0.000)*
Asset income > £100	0.010		-0.058	0.056
	(0.026)		*(0.047)*	*(0.068)*
Home owner	0.014	**0.004**	0.049	-0.032
	(0.014)	*(0.005)*	*(0.044)*	*(0.034)*
Observations	410	395	336	343

Marginal effects from probit model of attrition. Bold indicates significance at 5% level