

What is the Effect of Cohabiting and Being Married on Job Satisfaction?

Elena Mariani
London School of Economics

June 2014

1 Introduction

What is the effect of being in a union (cohabitation or marriage) on job satisfaction? There are at least three reasons why job satisfaction is an interesting variable when considering the effects of family context on labour market outcomes. Increase in cohabitation rates and decrease in marriage rates have raised the attention of researchers and public at large in the last 30 years (Smock 2000). There has been interest in studying the extent to which trends in marriage and cohabitation rates are related to changes in the economic environment, including the rise in female labour market participation and the decline in stability of young adults' careers (Clarkberg 1999, Oppenheimer 2003). Demographers and economists have asked to what extent changes in economic circumstances have led to changes in family formation patterns. In order to answer this question they have often considered economic benefits and costs associated with each marital status, however only little attention has been given to job satisfaction. This is regrettable because job satisfaction might well be an aspect that individuals take into account when deciding to marry or to cohabit.

Previous evidence shows that job satisfaction predicts a range of behaviours in the labour market, most notably quitting, absenteeism and productivity (Freeman 1978, Argyle 1989, Clark 2001, Sousa-Poza and Sousa-Poza 2007, Bockerman and Ilmakunnas 2012). For this reason job satisfaction can be considered a proxy for certain micro level risks that individuals might face in the labour market, including risk of remaining unemployed, being fired or of experiencing low wages in the future. Moreover, job satisfaction can also be considered as a measure of work attachment as high levels of job satisfaction increase the likelihood of remaining in employment and express the willingness to do so. My study on the association

between family formation processes and job satisfaction can therefore help understanding how different family states are related to uncertainty in the workplace and future labour market behaviours.

I argue that job satisfaction is a variable measuring an aspect of working life that is not measured by objective working conditions. This argument is supported by the evidence that job satisfaction has only a small association with income (Judge et al. 2010) and in general with job quality (Brown et al. 2012). This is a suggestion that variations in job satisfaction are explained by factors other than variables that are usually employed to measure well-being in the labour market. In particular, one useful interpretation of job satisfaction measures is to look at them as measures of the fit of one's job in one's life, which is the overarching working assumption of this study. Therefore variations in job satisfaction might well be explained by changes in private life and family context because such changes can make one's job more or less desirable. Indeed, from this perspective one could argue that family and private life context should be as much important in explaining job satisfaction as working arrangements.

Nevertheless, previous research has explained job satisfaction almost entirely in terms of working conditions, leaving the role of family context largely understudied. There is only scarce and mixed evidence regarding the relations between job satisfaction and family status. Older studies have shown that married workers are more satisfied than single ones (Bersoff and Crosby 1984; Clark 1996), but more recent ones have reported the opposite (Gazioglu and Tansel 2006). Furthermore, Clark (1997) shows that being married is positively associated to job satisfaction for women but not for men. On another note, the study by Georgellis et al. (2012) looks at the impact of a transition into marriage on job satisfaction rather than comparing married individuals to single: they show that marriage has only a short-term effect on job satisfaction and the direction of this effect is specific to gender and sector of employment. The authors report that marriage has a negative effect on job satisfaction for women only if they are employed in the public sector and conversely a negative effect for men only if they are private sector employees. However, their study has a series of conceptual limitations: it does not provide a holistic picture of the associations between transitions into marriage and job satisfaction and it does not consider the role of pre-marital cohabitation.

One limitation common to all these studies is that cohabitation is ignored as a partnership status. If the goal is to understand how family context affects job satisfaction, it is not sensible to exclude cohabitation, considering that nowadays in most Western countries the majority of individuals expect to cohabit at some point in their lives (Beaujouan and

Bhrolcháin 2011).

In order to answer my research question I use data from the British Household Panel Survey (BHPS) covering years 1991-2008. My study addresses two methodological challenges: selection into partnership and selection into employment. Selection into partnerships relates to the fact that individuals who remain single, cohabit to get married might all have different unobservable traits that also affect their job satisfaction. Selection into employment instead relates to the fact that job satisfaction is only observed for individuals who are in employment, therefore we do not know if the estimated results are due to being in a given marital status or are driven by some characteristics which are also correlated with the decision of remaining in employment. I will explain how I address these methodological challenges in sections 3 and 4.

In sum, my study makes at least four important contributions. First, I suggest a new interpretation of job satisfaction measures and a way to operationalise it. Second, I provide evidence on the associations between marital states and a dimension of well-being previously largely ignored, job satisfaction. Third, I clearly distinguish marriage from cohabitation and disentangle the meaning of being in each of these partnerships in terms of job satisfaction. Fourth, I provide a methodological improvement with respect to most literature on union formation effects by showing the role of selection into employment and marital status in driving the results.

The next section presents the theoretical background. In section 3 I will provide a description of the data, the main variables used and the methods adopted. Section 4 shows the analysis. Section 5 includes a critical discussion of the results and section 6 concludes.

2 Data and Methods

In this study I use all 18 waves of the British Household Panel Survey (BHPS) running from 1991 to 2008. The BHPS is a survey of private households in which at each wave all members of the household are interviewed. In this analysis I will only use the original sample of respondents which started out in 1991 with 5,500 households comprising about 10,300 individuals from Great Britain and has been increased overtime through the addition of members of households turning 16 and new members joining existing households (e.g spouses). The estimation sample is made up of all working age individuals who are observed working for

at least two consecutive waves ¹. Individuals working under any type of contracts (full-time, part-time, self-employed, etc.) are retained in order to guarantee an adequate sample size.

At every wave, the BHPS questionnaire contains a question about job satisfaction. It requires respondents to state how satisfied they are with their jobs on a scale from 1 (not satisfied at all) to 7 (extremely satisfied). This question is asked to all respondents who did paid work the week before the interview, employee or self-employed, and also to those who did not do paid work the week preceding the interview, but did have a job from which they were away from.

In order to address the problem of selection into partnership explained in section 1 I adopt fixed-effect estimators. The difficulty of establishing causal effects of marriage has been noted by previous authors (Ribar 2004, Price 2011). The use of panel data allows controlling for time invariant unobservable characteristics that determine both the decision of changing partnership status and variations in job satisfaction: in other words fixed-effect estimators provide an estimation of the treatment effect by exploiting within-individuals variations of marital status. However, the identification of the effect fails if there are time variant unobservable characteristics determining job satisfaction and family status (e.g. change in personality traits). While the use of large survey panel data is a rather established procedure in the literature of marital status effects, it has scarcely been used in studies on the association between marital states on job satisfaction (the only exception being Georgellis et al. 2012).

Moreover, in order to take into account the fact that individuals who have a spell of premarital cohabitation might be different from those who marry directly, I introduce an interaction term that allows to test whether the marriage effect on job satisfaction is different whether individuals cohabited before marriage or not.

Previous studies using subjective well-being measures as outcome variables have treated these ordinal constructs as cardinal variables and adopted models for continuous outcome variables. However, I argue that it is theoretically preferable to utilize a method that respects the ordinal nature of the data. For this purpose I adopt the estimator proposed by Baetschmann et al. (2011) which allows to estimate ordinal fixed effect (FE) logistic models (BUC estimator) ². Following Baetschmann et al. (2011) the BUC estimator is better than

¹This is to guarantee the identification of the effect via fixed effect estimators

²BUC is an acronym that stands for "Blow Up and Cluster".

other ordinal FE logistic estimators because there are small sample sizes associated with some cutoff variables (there are only a few individuals with very low values of job satisfaction). In this case it is possible to show that the BUC estimator outperforms all existing ordinal FE logistic estimators.

The starting point is a latent variable model

$$Y_{it}^* = \beta_1 M_{it} + \beta_2 M_{it} Z_i + \beta_3 C_{it} + X'_{it} \gamma + \nu_i + \epsilon_{it}, \quad i = 1, \dots, N \quad t = 1, \dots, T \quad (1)$$

where Y_{it}^* is a latent measure of job satisfaction of individual i in period t , M_{it} a dummy indicator for being married in a given year, Z_i a time-invariant dummy tagging the group of premarital cohabitants, C_{it} a dummy indicator for being in cohabitation in a given year, X'_{it} a set of covariates and controls, ν_i a time-invariant unobserved component and ϵ_{it} is a error term. Equation (1) can be rearranged in a way that makes clear the role of the interaction:

$$Y_{it}^* = (\beta_1 + \beta_2 Z_i) M_{it} + \beta_3 C_{it} + X'_{it} \gamma + \nu_i + \epsilon_{it}, \quad i = 1, \dots, N \quad t = 1, \dots, T \quad (2)$$

The rationale for including the interaction term between the dummy for being married (M_{it}) and the dummy for being a premarital cohabitant (Z_i) rather than estimating two separate marriage effects (for premarital cohabitants and for those marrying directly) is that the interaction allows testing directly the hypothesis whether the marriage effect on job satisfaction is different depending on whether individuals cohabited before marriage or not. Therefore, the effect of a direct marriage on job satisfaction is identified by β_1 , whereas the effect of marriage preceded by cohabitation by $\beta_1 + \beta_2$ and the effect of unmarried cohabitation by β_3 .

However, Y_{it}^* is not observed and we only observe values of job satisfaction Y_{it} which are related to Y_{it}^* as follows

$$Y_{it} = k \quad \text{if} \quad \mu_k < Y_{it}^* \leq \mu_{k+1}, \quad k = 1, \dots, 6 \quad (3)$$

where k is the number of cutoffs and the thresholds μ_{it} are assumed to be strictly increasing ($\mu_k < \mu_{k+1}$, $\forall k$) and $\mu_1 = -\infty$ and $\mu_{k+1} = \infty$. In simple terms we only observe individuals expressing their levels of job satisfaction at the cut offs 1 through 7 and we make the reasonable assumption that someone expressing job satisfaction level 1 is less satisfied with their job than someone expressing level 2 and so on. Define Γ_{it} the vector $(M_{it}, Z_i, C_{it}, X'_{it})$. Under the assumption that ϵ_{it} is IID logistic the probability of observing outcome k for individual i at time t is

$$Pr(Y_{it} = k | \Gamma_{it}, \nu_i) = \Lambda(\mu_{k+1} - \Gamma_{it} - \nu_i) - \Lambda(\mu_k - \Gamma_{it} - \nu_i) \quad (4)$$

where $\Lambda(\cdot)$ denotes the logistic cumulative function. Coefficients $\beta_1, \beta_2, \beta_3$ and γ cannot be estimated consistently from a direct estimation of (4). However, the BUC estimator involves a procedure that finds a way around this problem. Given a number $K-1$ of cutoffs in the dependent variable, the procedure implied by the BUC estimator involves creating a $K-1$ copies of each individual in the dataset, so that for each copy it is possible to dichotomize the dependent variable at each different cutoff. The model is then estimated on the expanded sample using the standard Chamberlain (1980) approach and under the constraint that $\beta_1 = \beta_2 = \dots = \beta_k, \forall k$. Standard errors are clustered at the level of the respondent because some individuals contribute to several terms in the likelihood function.

In order to interpret job satisfaction measures as fit of one's job in one's life I would like to control for a set of job characteristics that are likely to contribute to job satisfaction. In this way the coefficients for the effect of marriage and cohabitation can be interpreted conditional on working arrangements: they therefore capture the variation in job satisfaction that is due to family processes after controlling for what happens at the workplace.

Second, I should only control for covariates that are pre-determined and not affected by the family process that is under study (Rosenbaum 1984). The idea is that since my aim is to study the overall link between family formation and job satisfaction, I should not control for those things that changed in individuals' lives because of the formation of a family, and which would not have changed otherwise. If a full-time working woman decides to switch to part-time employment because she is getting married, but she would have remained a full-time employee if she had not got married, then I should not control for type of contract because the switch to part time employment cannot be distinguished from what it is the meaning of getting married. In this particular example getting married means among other things changing type of contract to accommodate childcare needs. The coefficients for the effect of getting married will therefore only be meaningful if I do not control for variables that are likely to be affected by the change in marital status.

This consideration suggests some caution in the choice of covariates to include. Ideally I would like to include for each research question only the covariates that individuals have little power in modifying; but in practice most workplace variables are affected by family processes.

In conclusion the approach that I will follow is to start from a baseline model containing

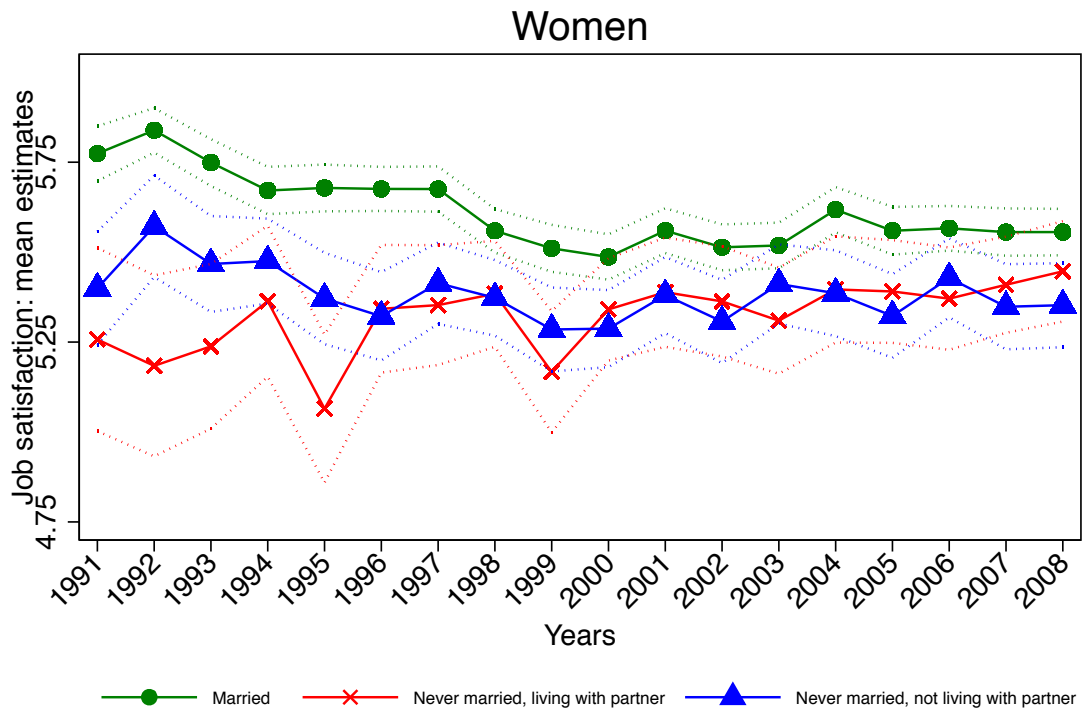
only pre-determined controls (age and time dummies) and move on to include covariates that are unlikely to change because individuals have generally little power or interest in modifying them (occupation, industry), then covariates that might change but normally only if someone changes job (distance to workplace, workplace size), and lastly covariates that might change even in case someone remains in the same job (earnings, hours worked, part-time). The full model is the one that allows an interpretation of job satisfaction measures as fit of one's job in one's life, however it is also the one for which there might be problems of post-treatment bias.

3 Analysis

3.1 Descriptive Analysis

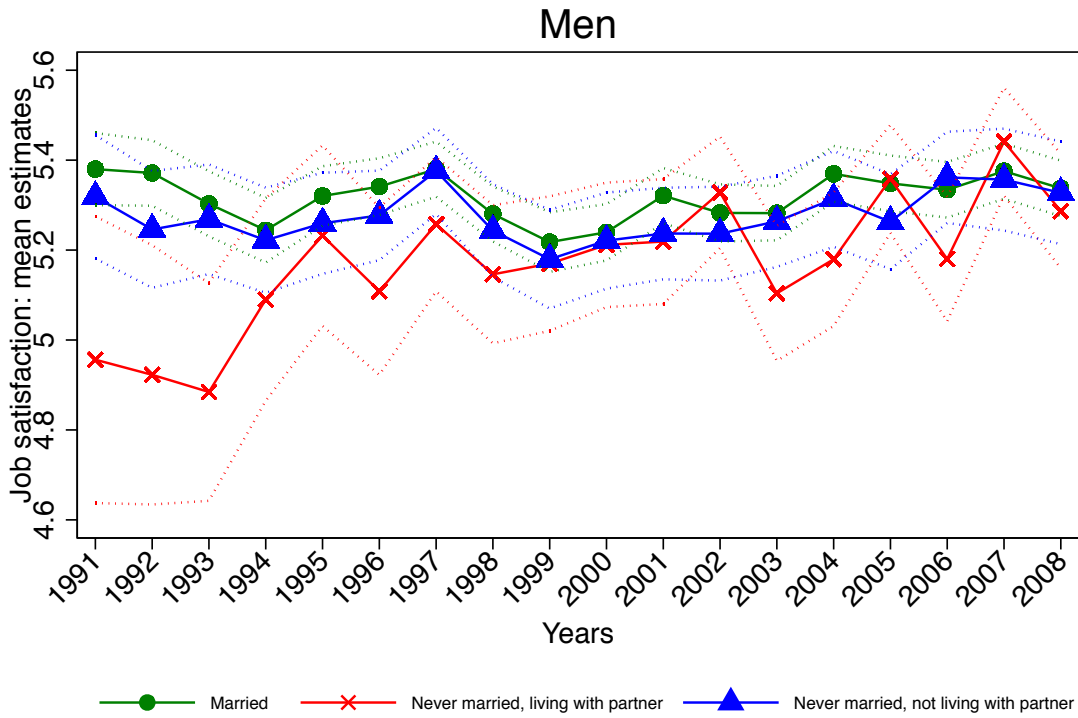
Given the lack of previous empirical evidence regarding the association of job satisfaction with marital states and the uncertain theoretical predictions on the direction of this association it is useful to begin the analysis by considering the observed relationship among the variables of interest. In figure 1 and 2 I report the trend of mean estimates of job satisfaction conditional on marital status and wave for each gender respectively with 95% confidence interval. It is clear that married women are consistently more satisfied at work than their single and cohabiting counterparts. However the marriage job satisfaction advantage for women has declined overtime. There does not seem to be a relationship between job satisfaction and marital states for men. It is worth noting that the observed associations are likely to be confounded by factors that affect job satisfaction and partnership status. The rest of the analysis aims to establish a robust association between job satisfaction and partnership status by taking into account selection into marital status.

Figure 1: Mean job satisfaction score (with pointwise 95% confidence interval) by marital status



Note: job satisfaction scale ranges from 1 to 7.

Figure 2: Mean job satisfaction score (with pointwise 95% confidence interval) by marital status

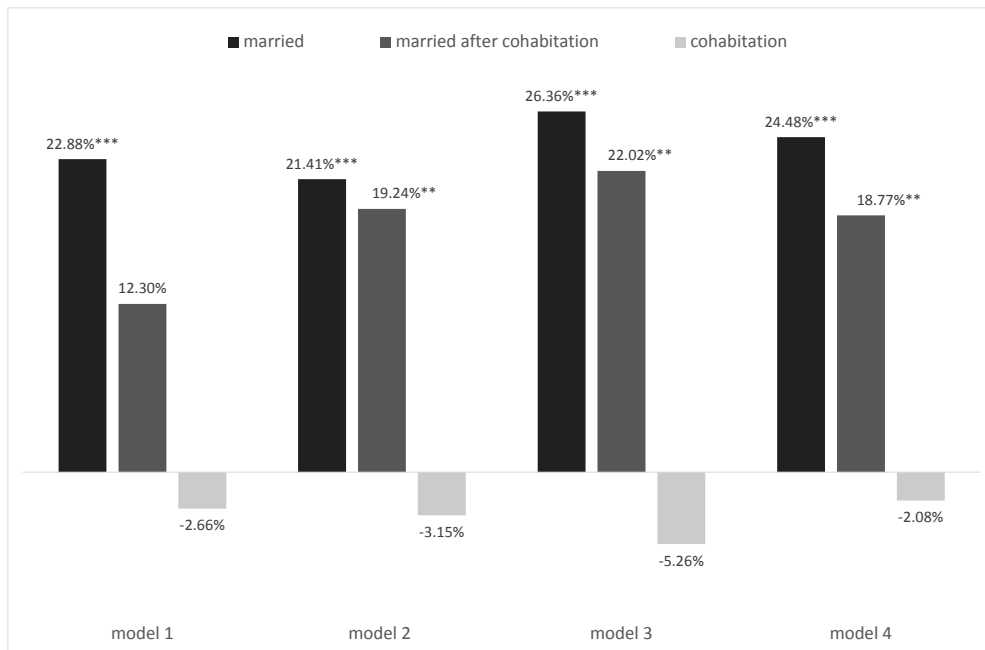


Note: job satisfaction scale ranges from 1 to 7.

3.2 Results

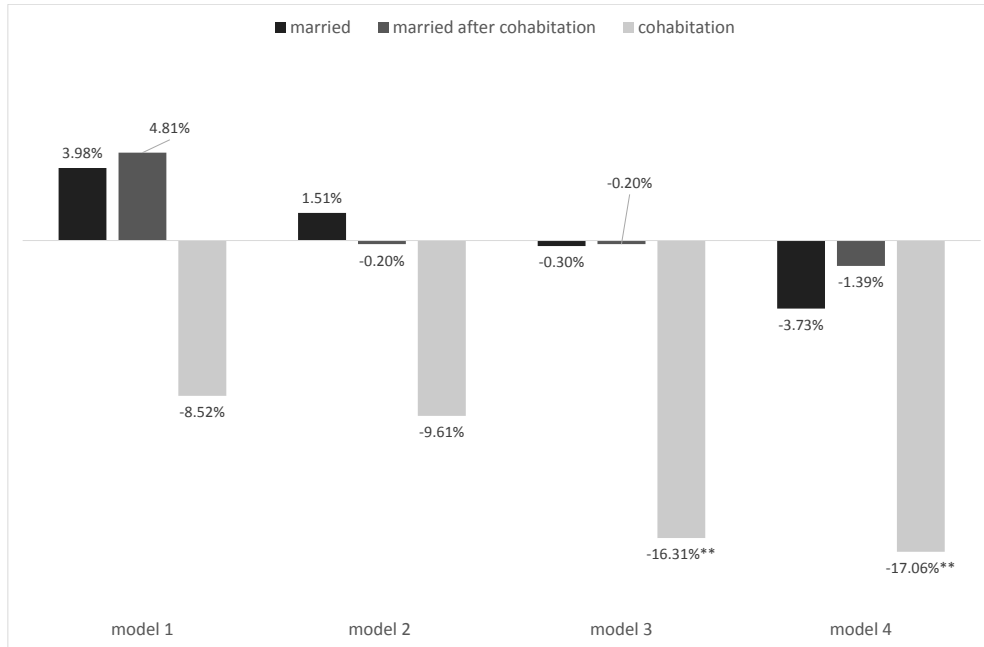
In figure 3 I report the estimated factor changes for women.

Figure 3: Women



Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

Figure 4: Men



Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

3.3 Selection into employment

In section 1 I explained that selection into employment is the problem that individuals in employment might be different from those not working in a way that also affects levels of job satisfaction. This is especially a concern for women, who traditionally have lower work attachment. The literature on motherhood penalty has dealt with issues of selection into labour force predominantly adopting selection corrections based on observable characteristics (Korenman and Neumark 1992, Amuedo-Dorantes and Kimmel 2005, Glauber 2007). Surprisingly there has not been much concern about selection into employment on studies regarding marriage effects on labour market outcomes. Killewald and Gough (2010a) claim to be the first to take into account potential bias introduced by selective entry into the labour market in the estimation of women marriage premium. They also employ a selection model based on the assumption of selection on observables. I argue that for my particular research

question the assumption of selection on observables is unlikely to hold, this is because it is likely that unobserved characteristics as personality traits and career orientation are the most influential drivers of job satisfaction and decisions of remaining in employment. Although there is no obvious methodological solution, in order to take into account this issue of selection into employment and avoid making the assumption of selection on observables I will run my analysis stratified by a measure of career continuity. This is because if we believe that the hypothesis of selection into employment is true then we would expect marital states to have different effects on job satisfaction according to the degree of career continuity.

In order to test whether the estimated effects are driven by selection into employment I run the models in the groups of individuals who have high education and those with lower levels of education. While this is an imprecise measure of employment attachment, the probabilities in figures 5 and 6 show that at each age individuals with high levels of completed education are more likely to be employed. If selection into employment has no role in driving the results then I expect marital status effects to be similar in the two groups. The intuition behind this is that if individuals do not select themselves into employment it is equivalent to say that they drop out randomly from my sample. On the other hand, if only certain types of individuals remain employed then I expect partnership status effects to be different according to the level of education, used as a proxy of employment attachment.

Figure 5: Women

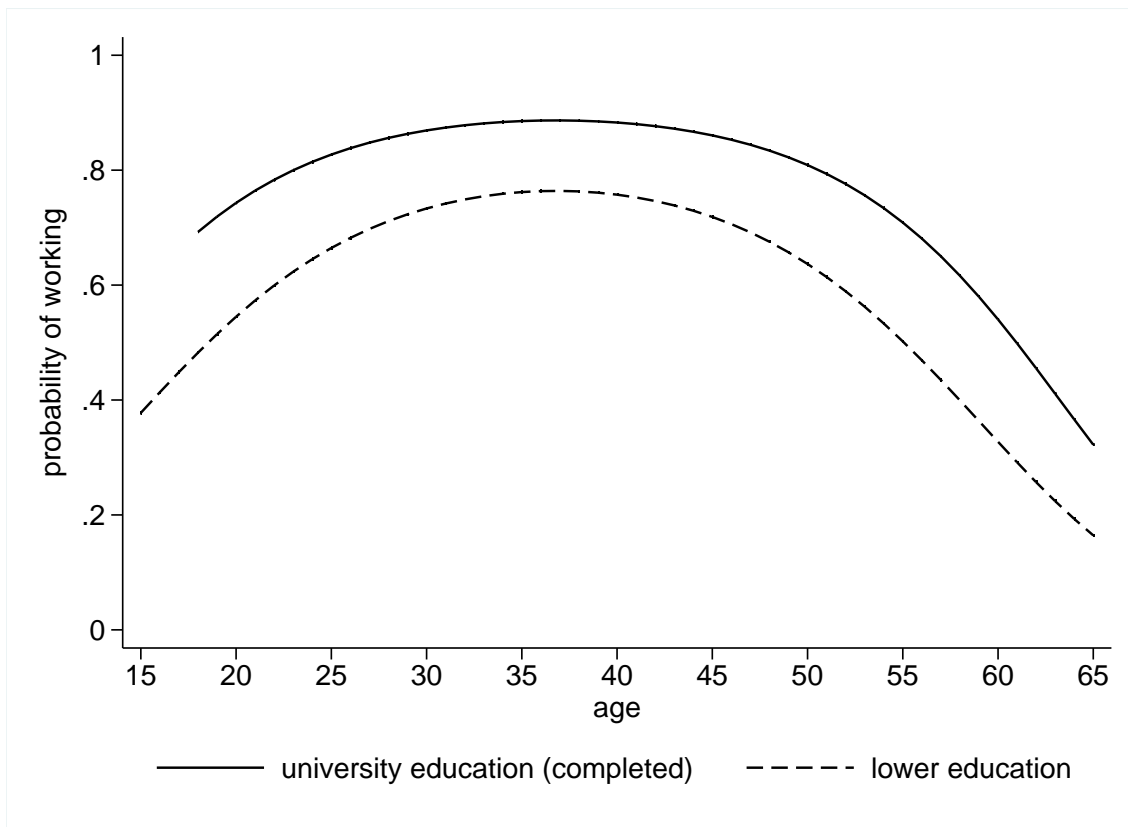


Figure 6: Men

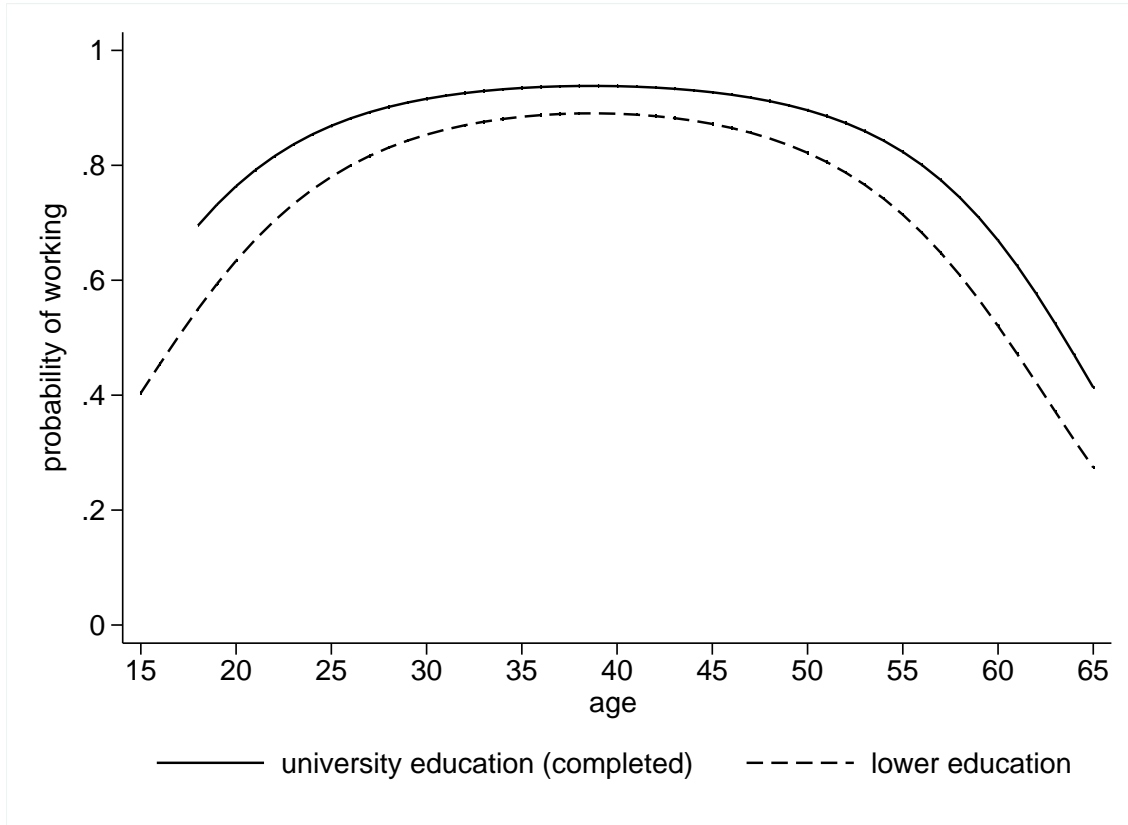
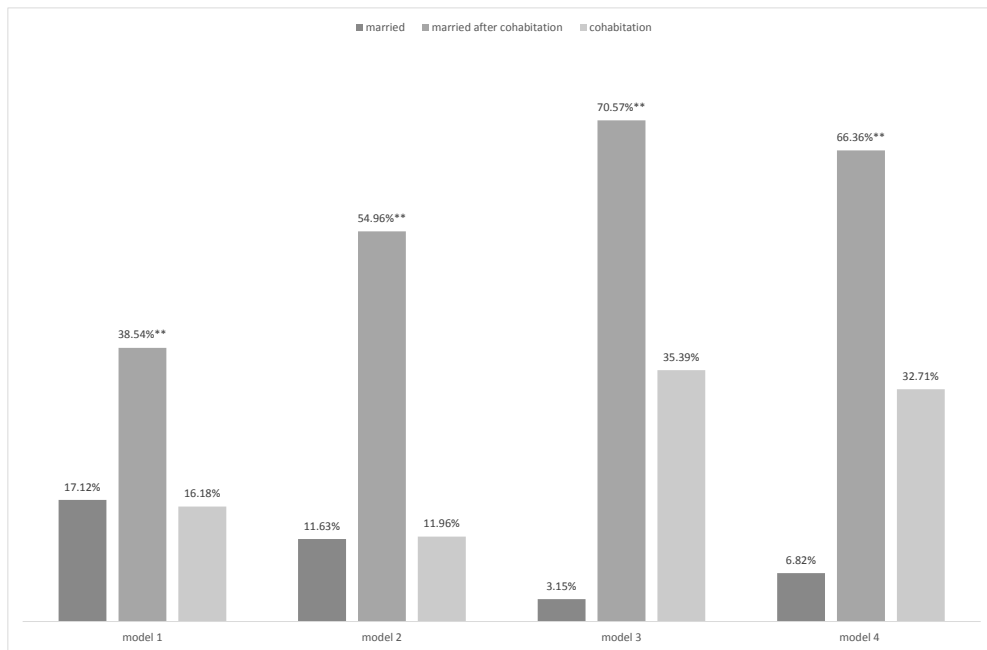
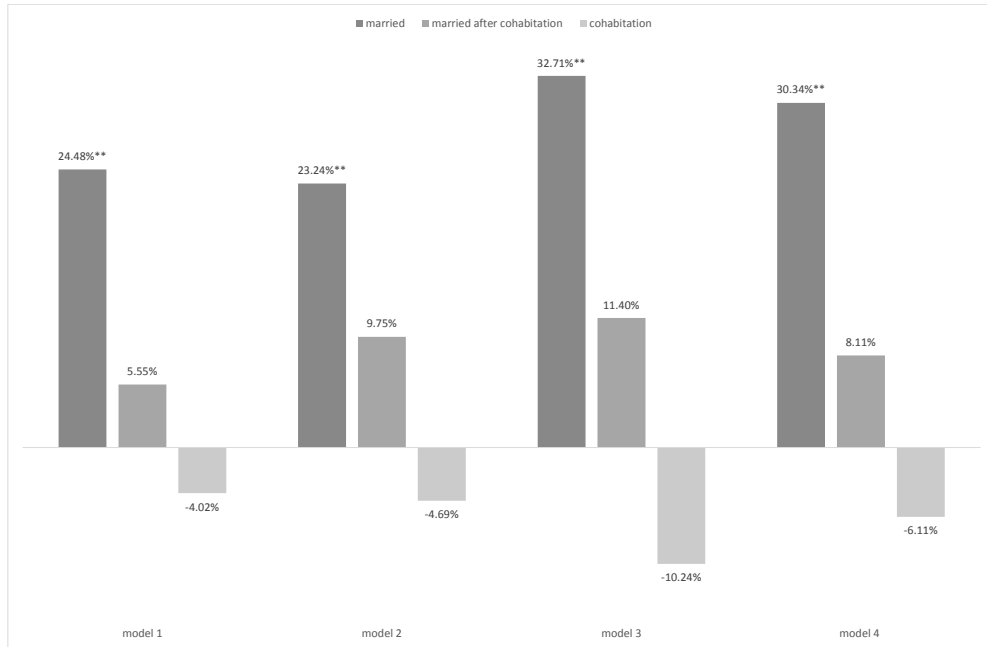


Figure 7: Women: high education



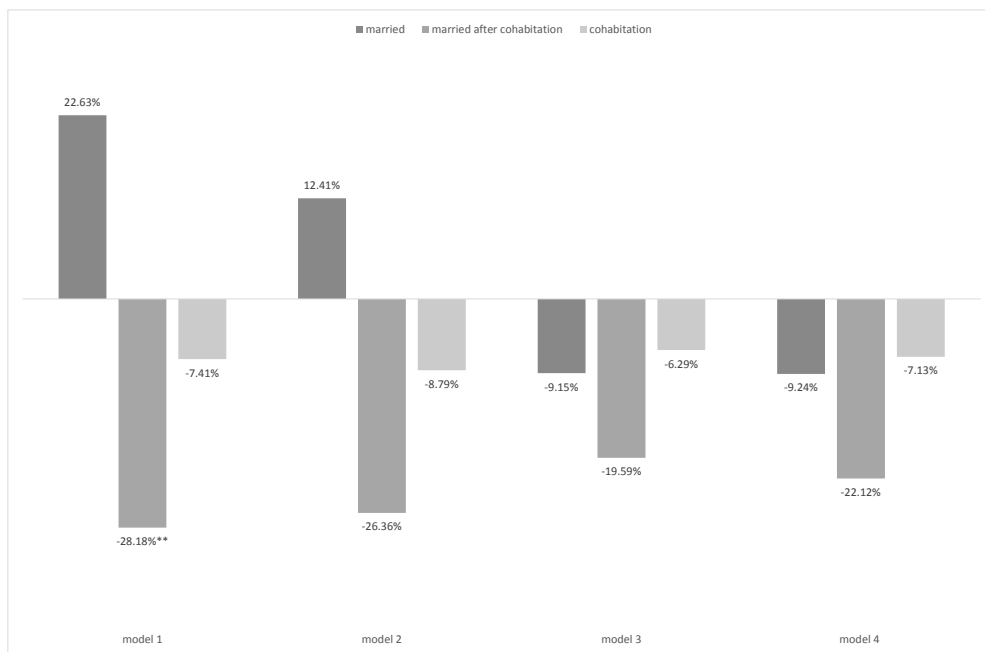
Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

Figure 8: Women: low education



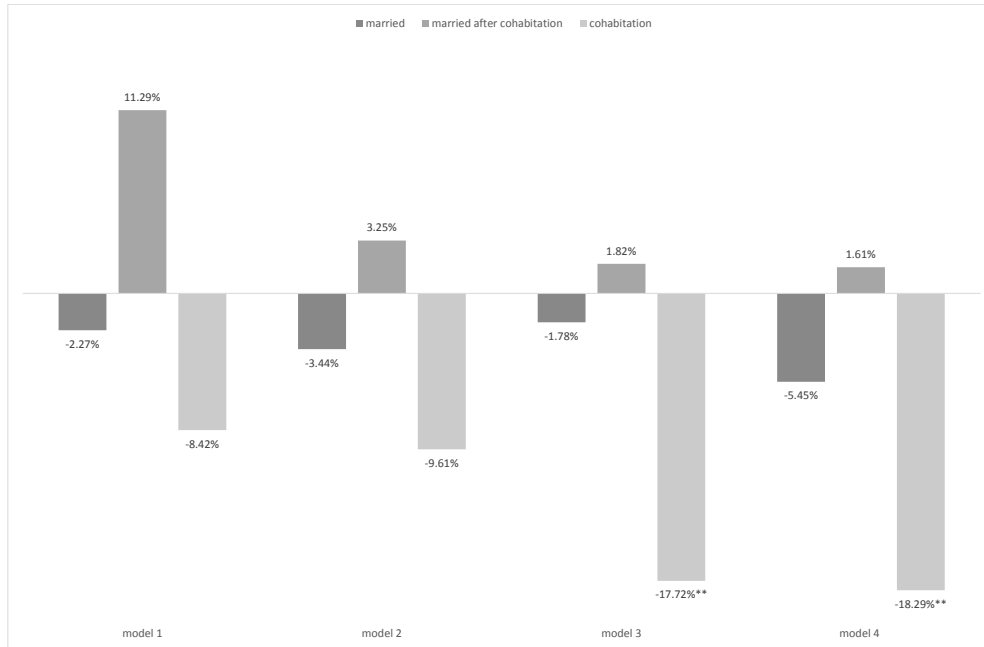
Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

Figure 9: Men: high education



Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

Figure 10: Men: low education



Note: odds of expressing a higher levels of job satisfaction rather than a lower one. Model 1: age, time and individuals fixed effects. model 2: age, occupation (1-digit), industry, time and individual fixed effects. Model 3: age, occupation (1-digit), industry, length of travel to workplace, workplace size, time and individual fixed effects. Model 4: age, occupation (1-digit), industry, length of travel to workplace, workplace size, earnings (log), hours worked, part-time, self-employed, time and individual fixed effects.

3.3.1 Results for women

Marriage increases job satisfaction significantly for women, regardless whether they cohabited before marriage or not. Cohabitation is associated to lower levels of job satisfaction, although not statistically significantly different from zero. There seems to be some indications that the findings are partly explained by selection into partnership status, as women who have strong employment attachment have much lower levels of job satisfaction after marriage.

3.3.2 Results for men

For men there is no association between job satisfaction and marriage, but cohabitation decreases job satisfaction in models 3 and 4. This result does not seem to be explained by selection into partnership.

4 Discussion and Conclusions

Married women are more satisfied at work than single and cohabiting ones, regardless of whether they cohabited before marriage or not. Married women are observed to be more satisfied at work than single and cohabiting ones both in cross-sectional comparisons and when individual fixed effects are controlled for, suggesting the observed estimates are not entirely the result of selection into marriage. However, the result can be partially explained with selection into employment, in the sense that women with strong work attachment are less likely to experience an increase in job satisfaction after marriage than women with less strong attachment. Therefore, there is some evidence that the factors that make women decide to discontinue their employment are also the factors that make employment decisions fit better with married life.

On average, it seems that being a wife and a worker fit quite well together for women. It is possible that working women particularly benefit from having a husband as a source of material and moral support, so that they feel more satisfied with their jobs when married than when single or cohabiting, so that the mechanism of reciprocal support seems to be the one at work here. Moreover, married women who cohabited before marriage are significantly more satisfied at work than when they were cohabiting, suggesting that it is the fact of being married *per se* rather than merely living together that matters in terms of job satisfaction.

The effect of being in a cohabitation on job satisfaction for women depends strongly on the degree of work attachment.

For men the most interesting results are that marriage does not matter much in terms of job satisfaction, but cohabitation seems to create a bad fit in men's life, regardless of their work attachment.

The biggest limitation of this analysis is the limited external generalisability, which comes from the nature itself of the problem under study. That is, the fact that observations on job satisfaction are truncated leads to a restriction of the marital status effect that can be estimated without bias. Nevertheless, the discussions about self-selection into employment are a first step in describing different types of counterfactual scenarios and constitute a methodological improvement with respect to previous literature on the effects of marital status effects as explained in the introduction (Ribar 2004; Killewald and Gough 2010a).

The second and a third limitations concern the internal validity of my study. The internal validity of the results is strictly dependent on the plausibility of the identification assumption that there are no time-varying unobservable characteristics that affect job satisfaction and family formation. The important point is that this assumption cannot be directly tested so that we should always take it into account when interpreting the effects in a causal fashion. In particular, I argue that the assumption is most unlikely to hold for young individuals, as it is likely that changes in personality traits would be more important for younger age groups. Moreover, the internal validity of the analysis is also challenged by arguments regarding the measurement of the variables included in the study. Pudney and Conti (2008) show that in the context of the BHPS women's self reported job satisfaction is more affected than men's by the mode and context of interview, suggesting considerations of measurement error might be more serious for this group.

The fourth limitation regards the inability of my model to take into account mechanisms that might manifest and impact job satisfaction at different years after the onset of a specific union. To be sure, the timing at which various mechanisms might manifest is not clear: it is possible that the mechanism of reciprocal support arises just after marriage, but also that it develops with time. Also, conflicts between being good workers and good spouses arising by changes in work dedication and time allocation might take longer to develop, so that my estimates are confounded by the different lengths of the relationships. An analysis of transitions into marital statuses might be able to clarify these issues.

The fifth limitation concerns the effect of attrition. All the estimates reported are unweighted so that there is the risk the results might be biased due to selective attrition. In particular we should be concerned with two types of missing respondents: those who are unavailable for one or more waves and those who decide to leave the sample. Lynn (2006) has conducted a quality profile of the BHPS and shows that individuals that in wave 1 were aged 16-24 or never married or unemployed or those in the bottom 40% of the income distribution are under represented because they are more likely to fail to respond at one or more instances. Also those who were in single person households and those in poor health are more likely to drop out of the sample. The existence of attrition is problematic if those remaining in the sample have also systematically different levels of job satisfaction than those under represented, which is not a straightforward observation in this case. Nevertheless, the indications of Lynn (2006)'s study suggest some caution in generalising results to individuals from a disadvantaged background.

Lastly, the findings are relative to a single European country, the United Kingdom. It is possible that some structures of the society as for instance the degree of flexibility of the labour market, generosity and scope of the social protection system and gender norms, contribute to drive the results. It would be interesting for future research to evaluate whether similar findings can be confirmed in other countries as well.

References

- Akerlof, G. A. and Kranton, R. E. (2010). *Identity Economics: How Our Identities Shape Our Work, Wages, and Well-Being*. Princeton University Press.
- Amuedo-Dorantes, C. and Kimmel, J. (2005). The Motherhood Wage Gap for Women in the United States: the Importance of College and Fertility Delay. *Review of Economics of the Household*, 3(117-48).
- Argyle, M. (1989). Do Happy Workers Work Harder? The Effect of Job Satisfaction on Work Performance. In Veenhoven, R., editor, *How Harmful is Happiness? Consequences of Enjoying Life or Not*. Universitaire Pers Rotterdam, The Netherlands.
- Baetschmann, G., Staub, K. E., and Winkelmann, R. (2011). Consistent Estimation of the Fixed Effects Ordered Logit Model. IZA Discussion Paper 5443, Institute for the Study of Labor. Bonn.
- Baxter, J. (2005). To Marry or not to Marry: Marital Status and the Household Division of Labor. *Journal of Family Issues*, 26(3):300–321.
- Beaujouan, E. and Bhrolcháin, M. N. (2011). Cohabitation and Marriage in Britain since the 1970s. Technical report, Office of National Statistics.
- Becker, G. S. (1981). *A Treatise on the Family*. Harvard University Press.
- Bersoff, D. and Crosby, F. (1984). Job Satisfaction and Family Status. *Personality and Social Psychology Bulletin*, 10(1):79–83.
- Bockerman, P. and Ilmakunnas, P. (2012). The Job Satisfaction-Productivity Nexus: A Study Using Matched Survey and Register Data. *Industrial and Labor relations review*, 65(2):244–262.
- Brown, A., Charlwood, A., and Spencer, D. A. (2012). Not all that it Might Seem: Why Job Satisfaction is Worth Studying Despite it Being a Poor Summary Measure of Job Quality. *Work, Employment and Society*, 26(6):1007–1018.

- Chamberlain, G. (1980). Analysis of Covariance with Qualitative Data. *Review of Economic Studies*, 47:225–238.
- Chun, H. and Lee, I. (2001). Why Do Married Men Earn More: Productivity or Marriage Selection? *Economic Inquiry*, 39:307–319.
- Clark, A. E. (1996). Job Satisfaction in Britain. *British Journal of Industrial Relations*, 34(2):189–217.
- Clark, A. E. (1997). Job Satisfaction and Gender: Why Women are so Happy at Work? *Labour Economics*, 34(2):189–217.
- Clark, A. E. (2001). What Really Matters in a Job? Hedonic Measurement using Quit Data. *Labour Economics*, 8(2):223–242.
- Clarkberg, M. (1999). The Price of Partnering: The Role of Economic Well-Being in Young Adults' First Union Experiences. *Social Forces*, 77(3):945–968.
- Cohen, P. N. (2002). Cohabitation and the Declining Marriage Premium for Men. *Work and Occupation*, 29:346–363.
- England, P. (2005). Gender and Economic Sociology. In Smelser, N. and Swedberg, R., editors, *The Handbook of Economic Sociology*, pages 627–649. Princeton University Press.
- Freeman, R. (1978). Job Satisfaction as an Economic Variable. *The American Economic Review*, 68(2):135–141.
- Gazioglu, S. and Tansel, A. (2006). Job Satisfaction in Britain: Individual and Job Related Factors. *Applied Economics*, 38(10):1163–1171.
- Georgellis, Y., Lange, T., and Tabvuma, V. (2012). The Impact of Life Events on Job Satisfaction. *Journal of Vocational Behavior*, 80:464–473.
- Glauber, R. (2007). Marriage and the Motherhood Wage Penalty Among African Americans, Hispanics, and Whites. *Journal of Marriage and Family*, 69(4):951–961.
- Gove, W. (1990). The Effect of Marriage on the Well-Being of Adults: a Theoretical Analysis. *Journal of Family Issues*, 36(1):4–35.
- Hakim, C. (1991). Grateful Slaves and Self-Made Women: Fact and Fantasy in Women's Work Orientations. *European Sociological Review*, 7(2):101–121.

- Hakim, C. (2000). *Work-Lifestyle Choices in the 21st Century: Preference Theory*. Oxford University press: UK.
- Hoffert, S. and Anderson, K. (2003). Are all dads equal? biology versus marriage as a basis for paternal Investment. *Journal of Marriage and Family*, 65:213–232.
- Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw, J. C., and Rich, B. L. (2010). The Relationship between Pay and Job Satisfaction: A Meta-Analysis of the Literature. *Journal of Vocational Behavior*, 77(2):157–167.
- Juster, F. T. and Stafford, F. P. (1991). The Allocation of Time: Empirical Findings, Behavioral Models, and Problems of Measurement. *Journal of Economic Literature*, 29(2):471–522.
- Killewald, A. and Gough, M. (2010a). Estimating the Impact of Marriage on Women’s Wages. In *Population Association of America*. Unpublished extended abstract presented at the 2010 Annual Meeting of the Population Association of America in Dallas, TX.
- Killewald, A. and Gough, M. (2010b). His and Hers Marriage Premium: Explaining Gender Differences in the Returns to Marriage. In *Population Association of America*. Unpublished paper presented at the 2010 Annual Meeting of the Population Association of America in Dallas, TX.
- Korenman, S. and Neumark, D. (1991). Does Marriage Really Make Men More Productive? *Journal of Human Resources*, 26(2):282–307.
- Korenman, S. and Neumark, D. (1992). Marriage, Motherhood and Wages. *Journal of Human Resources*, 27(2):233–255.
- Kuperberg, A. (2012). Reassessing Differences in Work and Income in Cohabitation and Marriage. *Journal of Marriage and Family*, 74:688–707.
- Lerman, R. (2011). Economic Perspectives on Marriage: Causes, Consequences and Public Policy. In Cohen, L. and Wright, J., editors, *Research Handbook on the Economics of Family Law*, pages 72–95. Edward Elgar Publishing Limited. Cheltenham, UK.
- Lorber, J. (2010). Feminisms and their Contributions to Gender Equality. In Lorber, J., editor, *Gender Inequality Feminist Theories and Politics*, pages 1–20. Oxford University press: UK.
- Lynn, P. (2006). Quality Profile: British Household Panel Survey. Technical Report Version 2.0: Waves 1 to 13: 1991-2003, Institute for Social and Economic Research.

- Nock, S. L. (1995). A Comparison of Marriages and Cohabiting Relationships. *Journal of Family Issues*, 16(1):53–76.
- Oppenheimer, V. K. (2003). Cohabiting and Marriage during Young Men’s Career-Development Process. *Demography*, 40(1):127–149.
- Price, J. (2011). Is it Just about Love? Factors that Influence Marriage. In Cohen, L. and Wright, J., editors, *Research Handbook on the Economics of Family Law*, pages 1–14. Edward Elgar Publishing Limited. Cheltenham, UK.
- Pudney, S. and Conti, G. (2008). If you’re Happy and you Know it, Clap your Hands! Survey Design and the Analysis of Satisfaction. ISER working papers 2008-39, Institute for Social and Economic Research.
- Ribar, D. C. (2004). What do Social Scientists Know about the Benefits of Marriage? A Review of Quantitative Methodologies. IZA Discussion Paper 998, Institute for the Study of Labor. Bonn: Germany.
- Rosenbaum, P. R. (1984). The Consequences of Adjustment for a Concomitant Variable that Has Been Affected by the Treatment. *Journal of the Royal Statistical Society*, 14(5):656–666.
- Rudd, N. M. and McKenry, P. C. (1986). Family Influences on the Job Satisfaction of Employed Mothers. *Psychology of Women Quarterly*, 10:363–372.
- Shelton, B. A. and John, D. (1993). Does Marital Status Make a Difference? Housework Among Married and Cohabiting Men and Women. *Journal of Family Issues*, 14(3):401–421.
- Smock, P. J. (2000). Cohabitation in the United States: An Appraisal of Research Themes, Findings and Implications. *Annual Review of Sociology*, 26:1–20.
- Sousa-Poza, A. and Sousa-Poza, A. A. (2007). The Effect of Job Satisfaction on Labor Turnover by Gender: An Analysis for Switzerland. *Journal of Socio-Economics*, 36:895–913.
- Stryker, S. and Burke, P. J. (2000). The Past, Present, and Future of an Identity Theory. *Social Psychology Quarterly*, 63(4):284–297.
- Waite, L. J. (2000). Trends in Men’s and Women’s Well-Being in Marriage. In Waite, L. J., editor, *The Ties that Bind: Perspectives on Marriage and Cohabitation*, pages 368–390. Aldyne de Gruyter.

Wilson, C. and Oswald, A. (2005). How does Marriage Affect Physical and Psychological Health? A Survey of the Longitudinal Evidence. IZA Discussion Paper 1619, Institute for the Study of Labor. Bonn.

5 Appendix

5.1 Appendix A: covariates

The covariates included in the fixed effects models have been chosen with the rationale of obtaining marital status effects net of the effect of some confounding events that are likely to happen at the time of a marital status transition. All the covariates presented but age are not predetermined and are very much likely to be affected by the treatment. As already mentioned, in terms of obtaining a causal interpretation of the effects it is not an ideal strategy to present adjusted effects, as they are likely to be biased. Nevertheless, although not causal these partial associations remain of substantive interest. Table 6 reports the list of the covariates included and their description.

Table 1: Fixed effect models: description of covariates

Covariate	Description
Age	Age at year of interview.
Children	Number of children living in the household of the respondent.
Health	Self-reported physical health status. It is coded in 5 categories and the reference category is excellent health.
GHQ	General Health Questionnaire. This is a composite index assessing the mental health of respondents. It is a summary measure of 12 items related to concentration, sleeping problems, perception of role, capability in decision making, whether constantly under strain, perception of problems in overcoming difficulties, enjoyment of day to day activities, ability to face problems, loss of confidence, self-worth, general happiness, depression. Higher values of the index indicates worse mental health status.
Work hours	Normal hours of paid employment per week.
Job tenure	Number of years the respondent has spent working for the same employer (for employees) or doing the same job for self employed. It is constructed as: year of interview minus year the respondent started their current job.
Income	Natural logarithm of gross monthly labour income at January 2008 prices.
Region	Categorical variables with 10 categories representing the following macro areas: London, Southeast England, Southwest England, Midlands, Northwest, Yorkshire, North, Wales, Scotland and Northern Ireland.