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Abstract: This paper analyzes the causal relationships between marriage and subjective well-being in a longitudinal data set spanning 17 years. We find evidence that more happy singles opt more likely for marriage and that there are large differences in the benefits from marriage between couples. Potential, as well as actual, division of labor seems to contribute to spouses' well-being, especially for women and when there is a young family to raise. In contrast, large differences in the partners' educational level have a negative effect on experienced life satisfaction.

JEL classification: D13, I31, J12

Keywords: division of labor, marriage, selection, subjective well-being

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Does Marriage Make People Happy, Or Do Happy People Get Married?

1 Introduction

Marriage is one of the most important institutions affecting people's life and well-being. Marital institutions regulate sexual relations and encourage commitment between spouses. This commitment has positive effects, for instance on spouses' health and their earnings on the labor market.

In this paper, we directly look at the effect of marriage on spouses' happiness as measured in an extensive panel survey with data on reported subjective well-being. This allows us to analyze whether marriage makes people happy, or whether happy people are more likely to get married. We want to go beyond the numerous previous studies which document that married people are happier than singles and those living in cohabitation (e.g. Myers 1999). We have two main interests in this paper: One goal is to provide systematic evidence on who benefits more and who benefits less from marriage. This evidence helps in assessing the crucial auxiliary assumption in models of the marriage market. Becker's seminal work on the economics of marriage (1973, 1974)¹ is based on the gains married people get from household production and labor division. Other theories focus on spouses' joint consumption of household public goods or on reciprocity and social equality in homogamous² relationships.³ In the latter case, it is argued that the tendency for "like to marry like" facilitates compatibility of spouses' basic values and beliefs. Our empirical analysis studies whether couples with different degrees of potential and actual

¹ An earlier economic theory of marriage in the spirit of Becker has been written by Knut Wicksell (1861-1926) (see Persson and Jonung 1997).

² Homogamy describes the tendency for "like to marry like". People of similar age, race, religion, nationality, education, attitudes and numerous other traits tend to marry one another to a greater degree than would be found by chance (see e.g. Hughes et al. 1999).

³ The progress in the theoretical analysis of marriage in economics is surveyed, e.g. in Weiss (1997) and Brien and Sheran (2003).

specialization of labor and more or less difference in education systematically differ in their benefits from marriage.

It is not our intent to recommend whether people should marry or should not. Rather, we intend to contribute to the public discussion about the value of intact marriages and legislators' debates about marriage penalties in tax codes, or the effect of welfare programs and social security on marriage. Moreover, empirical evidence on different couples' utility levels helps us to better understand the sources of well-being in marriage. The empirical analysis is challenged by the question of causality. Does marriage make people happier or is marriage just more likely for happier people? The second goal of our analysis is to address the question of selection. So far, there is no large-scale evidence on the role of selection in the relation between marriage and happiness. In a longitudinal data set, we compare singles who remain single with singles who marry later as well as with people who are already married.

In a panel spanning a period of 17 years, we find that selection of happier people into marriage is pronounced for those who marry when they are young and again becomes an important factor for those who marry later in life. Moreover, a retrospective evaluation shows that those who get divorced were already less happy when they were newly married and when they were still single. This indicates substantial selection effects of generally less happy individuals into the group of divorced people.

In order to study the differences in benefits from marriage, we restrict our analysis to people who got married during the 17 years of the sampling period. The results show that there are large differences in the benefits of marriage between couples. Moreover, most of the extra benefits in reported well-being are experienced during the first few years of marriage. Potential, as well as actual, division of labor seems to contribute to spouses' well-being, especially for women and when there is a young family to raise. In contrast, above median differences in partners' education level has a negative effect on experienced life satisfaction compared to those couples with small differences.

The paper proceeds as follows. Section 2 gives a brief introduction to previous research on marriage and well-being and outlines the research questions. The empirical analysis is conducted in section 3. The first subsection presents the panel data for the analysis and introduces the empirical approach. The second subsection deals with the question of selection into marriage. In subsection 3.3, the differences in the benefits of marriage are studied. Section 4 offers concluding remarks.

2 The effects of marriage on spouses' well-being

With marriage, people engage in a long-term relationship with a strong commitment to a mutually rewarding exchange. Spouses expect some benefits from the partner's expressed love, gratitude and recognition as well as from security and material rewards. This is summarized in the protection perspective of marriage. From the protective effects, economists have, in particular, studied the financial benefits of marriage. Marriage provides basic insurance against adverse life events and allows gains from economies of scale and specialization within the family (Becker 1981). With specialization, one of the spouses has advantageous conditions for human capital accumulation in tasks demanded on the labor market. It is reflected in married people earning higher incomes than single people, taking other factors into consideration and explicitly dealing with the possibility of reverse causation (Chun and Lee 2001, Korenman and Neumark 1991 and Loh 1996). According to this latter view, the marriage income premium would be solely due to men with a higher earnings potential being more likely to find a partner and get married (Nakosteen and Zimmer 1987).

There is a wide range of benefits from marriage that go beyond increased earnings. These benefits have been studied in psychology, sociology and epidemiology. Researchers in these fields have documented that, compared to single people, married people have better physical and psychological health (e.g. less substance abuse and less depression) and that they live longer. The evidence on the effects on health has been reviewed e.g. in Burman and Margolin (1992) and

Ross et al. (1990). Waite and Gallagher (2000) additionally survey evidence on income, health, mortality, children's achievements and sexual satisfaction. A survey that is focused on longitudinal evidence is Wilson and Oswald (2002).

Recently, there is increasing interest in the effect of marriage on people's happiness. It has been found that marriage goes hand in hand with higher happiness levels in a large number of studies for different countries and time periods (e.g. Diener et al. 2000, Stack and Eshleman 1998, see also Coombs 1991 and Myers 1999 for surveys). Married persons report greater subjective well-being than persons who have never been married or have been divorced, separated or widowed. Married women are happier than unmarried women, and married men are happier than unmarried men. Married women and married men report similar levels of subjective well-being, which means that marriage does not benefit one gender more than the other.

In this research, two reasons why marriage contributes to well-being are emphasized (Argyle 1999): First, marriage provides additional sources of self-esteem, for instance by providing an escape from stress in other parts of one's life, in particular one's job. It is advantageous for one's personal identity to have more than one leg to stand on. Second, married people have a better chance of benefiting from a lasting and supportive intimate relationship, and suffer less from loneliness.

Among the not married, persons who cohabit with a partner are significantly happier than those who live alone. But this effect is dependent on the culture one lives in. It turns out that people living together in individualistic societies report higher life satisfaction than single, and sometimes even married, persons. The opposite holds for collectivist societies.

The difference in happiness between married people and people who have never married has fallen in recent years. The "happiness gap" has decreased both because those who have never married have experienced increasing happiness, and those married have experienced decreasing happiness (Lee et al. 1991). This finding is consistent with people marrying later, divorcing more

often and marrying less, and with the increasing number of partners not marrying, even where there are children.

In economics, the effects of marriage on happiness have been found e.g. for the United States and the countries of the European Union (Di Tella et al. 2001), for Switzerland (Frey and Stutzer 2002a) and for Latin America and Russia (Graham and Pettinato 2002). Based on a microeconomic happiness function, the effect on subjective well-being of marriage has even been translated into a monetary equivalent. Blanchflower and Oswald (2003) calculate that a lasting marriage is worth \$100,000 per year (compared to being widowed or separated).

However, does marriage create happiness or does happiness promote marriage? A selection effect cannot be ruled out. It seems reasonable that dissatisfied and introverted people find it more difficult to find a partner. It is more fun to be with extraverted, trusting and compassionate persons.⁴ Cross-section research cannot properly deal with this selection explanation. Instead, panel data need to be analyzed. Most previous studies are limited by small sample sizes and short measurement periods (e.g. Menaghan and Lieberman 1986). An exception is the panel study by Lucas et al. (2002) over the course of 15 years. However, the focus of their analysis is on adaptation. Selection effects are only roughly studied in comparing those people who will get married to the average respondent. Differences in observable characteristics are not controlled for and age structure is not taken into consideration.

Our analysis uses 17 waves of the German Socio-Economic Panel. To our knowledge, this is the first large-scale evidence on selection with data on reported satisfaction with life.

What characterizes the couples who gain the most from marriage? This question sheds light on the channels providing the benefits from marriage. Moreover, related evidence helps to assess the crucial auxiliary assumptions in models of the marriage market.⁵ Economists have focused on the gains from specialization in household production, while sociologists and psychologists have

⁴ Selection effects into marriage are studied e.g. by Mastekaasa (1992).

⁵ Pollak (2002) discusses the important role of auxiliary assumptions in family and household economics.

emphasized increased emotional support and relational gratification. The latter is often related to homogamous couples, for instance with regard to social status measured in spouses' level of education. It is hypothesized that couples with largely different education levels gain fewer benefits from marriage and report lower subjective well-being. Previous research has focused on marital satisfaction rather than general satisfaction and found some supporting evidence for the benefits of homogamy (e.g. Tynes 1990, Weisfeld et al. 1992).

3 Empirical analysis

3.1 Data and empirical approach

In economics, the welfare effects of marriage have so far mainly been studied in terms of its effects on income. Here we use a much broader concept of individual well-being. We directly study spouses' level of utility and use reported subjective well-being as a proxy measure.⁶ Although this is not (yet) standard in economics, indicators of happiness or subjective well-being are increasingly studied and successfully applied (e.g. Clark and Oswald 1994, Di Tella et al. 2001, Easterlin 2001, Frey and Stutzer 2000, Kahneman et al. 1997, and for surveys see Frey and Stutzer 2002a,b and Oswald 1997). The existing state of research suggests that measures of reported satisfaction are a satisfactory empirical approximation to individual utility (Frey and Stutzer 2002b).

The current study is based on data on subjective well-being from the German Socio-Economic Panel Study (GSOEP).⁷ The GSOEP is one of the most valuable data sets to study individual well-being over time. It was started in 1984 as a longitudinal survey of private households and persons in the Federal Republic of Germany and was extended to residents in the former German

⁶ Subjective well-being is the scientific term in psychology for an individual's evaluation of his or her experienced positive and negative affect, happiness or satisfaction with life. With the help of a single question or several questions on global self-reports, it is possible to get indications of individuals' evaluation of their life satisfaction or happiness (Diener et al. 1999, Kahneman et al. 1999). Behind the score indicated by a person lies a cognitive assessment to what extent their overall quality of life is judged in a favorable way (Veenhoven 1993).

⁷ For a detailed description of the GSOEP, see Burkhauser et al. (2001) and Haisken-DeNew and Frick (2001).

Democratic Republic in 1990. We use all the samples available in the scientific use file (samples A to F) over the period 1984 to 2000. This provides observations for some people over 17 subsequent years. People in the survey are asked a wide range of questions with regard to their socio-economic status and their demographic characteristics. Moreover, they report their subjective well-being based on the question “How satisfied are you with your life, all things considered?” Responses range on a scale from 0 “completely dissatisfied” to 10 “completely satisfied”. In order to study the effect of marriage on happiness, we restrict the sample for the selection analysis to those who are single or married, and for the second analysis to those who marry during the sampling period (see Appendix 1 for a detailed description of the sampling procedures).

Table 1 presents a simple microeconomic happiness function based on a sample of 133,952 observations from 15,268 different people. The first estimation replicates the findings from previous studies and shows a positive effect of being married on reported satisfaction with life compared to those living as singles. Singles with a partner have a happiness level somewhere in between, while people who are married but separated experience lower subjective well-being than singles. The size of the coefficient can be directly interpreted.⁸ On average, married people report a 0.34 point higher life satisfaction than singles *ceteris paribus*.

[Table 1 about here]

The control variables indicate that life satisfaction is in a u-shaped relation to age. Women in the sample are slightly more satisfied than men. People with more years of education report higher

⁸ Here only ordinary least squares estimations are performed. Thus it is implicitly assumed that the answers can be cardinally interpreted. While the ranking information in reported subjective well-being would require ordered probit or logit regressions, comparative analyses have shown that it makes virtually no difference whether responses are treated ordinally or cardinally in microeconomic happiness functions (e.g. Ferrer-i-Carbonell and Frijters 2001 for a test with data from the GSOEP).

happiness scores. Reported life satisfaction is also related to the position in the household. Being a child of the head of the household rather than the actual head of the household (or their spouse) means, on average, higher well-being, while the effect is negative for household members who are not children of the head of the household.⁹ However, according to the pooled regression both groups profit more from higher household income than the head of the household or their spouse. These latter interaction terms are included in order to take into consideration that household income before and after marriage may capture rather different resources.¹⁰ Household income after marriage is supposed to be almost entirely controlled by the respondent and also earned to a large extent by the two spouses.

Income equivalence is constructed by a variable for the number of household members. Self-employed people, unemployed people, those who only occasionally work or do not work at all in paid employment, as well as those doing military service, report, on average, lower satisfaction scores than employed people. People from Eastern Germany, as well as Non-EU foreigners, report lower life satisfaction than residents in Western Germany and nationals and EU foreigners. In order to control for underlying time patterns, dummy variables for the last 16 waves are included.

The variables just discussed provide the set of control variables that are applied throughout the paper. However, it is not enough to control for possibly correlated variables in order to estimate the effect of marriage on subjective well-being. It has been shown that particular personality traits, e.g. extraversion, go with systematically higher happiness ratings (DeNeve and Cooper 1998). It is very likely that the same people also have a higher probability of getting married or staying married. Thus, selection effects are expected to bias the results for marriage and other variables in simple pooled regressions. A first step in order to get more reliable estimates is to take advantage of the fact that the same people are re-surveyed over time. A panel allows for

⁹ Both effects are estimated for average household income.

¹⁰ Annual household income is in thousands of 1999 German Marks and adjusted for differences in purchasing power between Western and Eastern Germany.

estimating the effect of a change in the marital status for one and the same person. These within-the-individual effects are independent of time-invariant personality factors and can be averaged across individuals. Technically, the estimator takes a time-invariant base level of happiness for each individual into account (fixed effect). The corresponding results are presented in the third and fourth column of Table 1. The positive and sizeable effect of being married rather than single remains. Thus, the positive correlation in the baseline estimation cannot simply be explained by a selection of happier people into marriage. However, the effect is smaller than in the baseline regression. There are also control variables that seem to be systematically correlated with unobserved characteristics that are themselves related with reported satisfaction with life.

Individual fixed effects in a multiple regression are one way of studying selection and marriage. This approach is effective when well-being patterns around marriage resemble a single shift at the time of marriage. However, if there are additional systematic patterns around marriage, the identification of well-being gains may be difficult to assess with this simple approach. In fact, on average, happiness peaks around the time of marriage. People report increasing average satisfaction scores before marriage and decreasing ones after marriage. With this pattern, it is unclear which observations produce the size of the effect in the regression and how it can be interpreted. Fixed effect regressions may thus provide only limited information about the protection and selection hypotheses of marriage.

In section 3.2, a visual test is conducted to study selection. The subjective well-being of three groups of people is compared over their life cycle. People who will marry are studied in comparison to those who will never marry and those who are already married. This allows us to make interpersonal comparisons to study selection. Moreover, it allows us to study changes in the extent of selection for different age groups.

A visual approach is also applied in section 3.3 in order to study the benefits from marriage for different groups of couples with regard to their socio-demographic characteristics. Happiness

patterns are studied around the time of marriage in order to detect systematic differences in reported subjective well-being.

3.2 Self-selection or do happy people get married?

Is marriage an institution for the happy and joyful crowd that finds a partner? This question summarizes the selection hypothesis in research on marriage and well-being. It is supposed that those who get married are intrinsically happier people.

In order to test the selection hypothesis, we follow a simple approach and compare two different groups of singles. The level of subjective well-being of singles who marry later in life is contrasted with the well-being of those who stay single, controlling for numerous observable characteristics. For any given age, a comparison of the average life satisfaction in these two groups indicates systematic heterogeneity to some extent. However, it has to be taken into consideration that the years immediately before marriage might not be representative for a person's intrinsic happiness level. People might live in a marriage-like relation, as cohabitants, thinking and planning their joint future in a loving relationship. As these years end in marriage, they are more likely to be the best years in life. Therefore, we only study singles who are 4 or more years away from marriage. Those expected to stay single represent the comparison group. This criterion has to be made tractable in a panel spanning only 17 years. In particular, if observations for young age groups are wanted. The category of "remained single" is therefore defined as those who are not married while in the sample, and can be observed at least until the age of 35. People in the sample marry, on average, at the age of 27 (std. dev. 5.9).

Figure 1 shows the result of the analysis for German data between 1984 and 2000. The reported average satisfaction scores are calculated, taking respondents' age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship status into account.

[Figure 1 about here]

The graph reads as follows: If singles at the age of 20 are asked about their satisfaction with life, the well-being of those who will marry later is higher than of those who will stay single throughout their life. The difference between the two dummy variables for age 20/21 is 0.31 (std. err. 0.16) satisfaction scores. If the singles who have not married before the age of 30 report their subjective well-being, those who will marry report, on average, roughly equal satisfaction scores to those who will not marry. Above the age of 30, singles who will marry in the future are on average reporting higher satisfaction scores than those who stay single, with an increasing gap. These differences (marked as shaded areas) are indicating the degree of selection in the relationship between marriage and happiness. Around age 20, the selection of people who will marry in the future includes a lot of singles whose happiness level is above average. Around the age of 30, the group of people who will marry in the future cannot be distinguished from the ones staying single. This is interesting, as one might expect an increasing gap between the happiness level of the two groups: among those who are still single at a higher age, it is mainly the happiest who are expected to marry. This correlation is in fact visible above age 30. Overall, the selection patterns indicate that selection effects are the largest for those who marry at a young age and those who marry late in life.

While the extent of selection can be studied by this interpersonal approach, the extent of well-being derived from marriage can only tentatively be assessed. Comparing singles who will marry one day with those people who are already married is a comparison after a possible selection has taken place. However, the gap between those two groups is substantial and unlikely to be due to time patterns in selection, i.e. due to the larger selection effects for those marrying at a young age. It has to be noted that average life satisfaction for those married does not include the first three years of marriage. Otherwise, the difference would be larger and substantially driven by the high but decreasing satisfaction scores in the post honeymoon stage.

The graph in Figure 1, moreover, seems to indicate that the difference in reported subjective well-being between singles and married people diminishes with age. However, attrition is likely to be more of a problem for unhappy singles than unhappy spouses, who are members of an interviewed household.

3.3 Differences in happiness of married people

Marriage is expected to be advantageous to people for several reasons. Economists emphasize the division of labor and specialization between married people, while sociologists in particular focus on homogamy, i.e. that “like marry like” in order to have a larger consensus over preferences.

In this section, it is tested whether there is evidence for some of these claims in data on reported satisfaction with life. We study people who marry within the sample period and observe their well-being around marriage. Figure 2 shows average life satisfaction in the years before and after marriage, based on 21,809 observations for 1,991 people. Average scores are calculated after taking respondents’ sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship status into account.

[Figure 2 about here]

The graph in Figure 2 shows a noticeable pattern: As the year of marriage approaches, people report, on average, higher satisfaction scores. In contrast, after marriage, the average reported satisfaction with life decreases.

Several concepts may explain this pattern. Some psychologists put forward an event explanation that marital transitions cause short-term changes in subjective well-being (e.g. Johnson and Wu 2002). Others take it as evidence for adaptation (Lucas et al. 2002). Adaptation in the marriage

context means that people get used to the pleasant (and unpleasant) stimuli they get from living with a partner in a close relationship, and after some time experience more or less their baseline level of subjective well-being. Whether this adaptation is truly hedonic, or whether married people start using a different scaling for what they consider a satisfying life (satisfaction treadmill), is difficult to assess. There is again a selection explanation for the pattern. Many people might only marry if they expect to experience a rewarding relationship in the future. They predict their future well-being as spouses based on their current well-being. Therefore, the last year before marriage becomes the last year, because the couples experience a particularly happy time in their relationship.

A similar selection can be observed for persons out of marriage. Figure 3 shows separate well-being patterns around marriage for those who stay married and those who get divorced within the sample period. It is clearly visible that those who are less satisfied before marriage also report lower satisfaction scores after marriage, and in this setting finally terminate the marriage relationship.

[Figure 3 about here]

In the current study, we are less interested in these patterns as such than in the large differences in life satisfaction for the newly married. In the first year after marriage, the standard deviation of reported satisfaction with life is 1.60 around the mean of 7.64. In the second year, the standard deviation is 1.59 and the mean 7.43. These numbers indicate that there are huge differences in how spouses feel in their lives as newly-wed couples. In the following sections, it is studied whether there are systematic differences for some sub-groups mentioned in theories of the marriage market.

a) Potential for specialization

One of the main predictions of Becker's theory of marriage is that the gain from marriage is positively related to couples' relative difference in wage rates (1974, p. S11). The reason is that a large relative difference in wage rates makes specialization between household production and participation on the labor market more beneficial.

The hypothesis is studied graphically in Figure 4. The sample is divided into a group of couples who have, on average, above median relative difference in wage rates and one with below median difference.¹¹ The averages presented are estimated *ceteris paribus*. However, not all the control variables mentioned for Figure 2 are included. As specialization is expected to provide benefits through increased household production, household income (as well as its close proxy education level) is not controlled for. The interaction variable between household income and being the child of the head of the household remains in the regression equation.

[Figure 4 about here]

Figure 4 shows that there are no systematic differences in subjective well-being for the two groups in the years after marriage. However, *before* marriage, those individuals who will be in marriages with large differences are less happy on average than those with small differences.¹² This indicates that couples with large differences benefit more from marriage. This is a finding that supports one of the main predictions in Becker's model based on the gains from specialization.

¹¹ Relative wage rates can be calculated because each person in the sample is matched with the socio-demographic characteristics of his or her spouse. Shadow wage rates for years during which the respondent or his or her spouse was not in the active labor force are estimated by using a simple procedure. Wages are approximated by the wage earned before or after the break - whatever was chronologically closer. It is assumed that in case a person would start working again at the time of the interview, he or she would have to accept his or her last wage without general wage increases, or it is assumed that he or she could get as high a wage as the one he or she gets in the future.

b) Actual specialization

Becker analyzes the factors for a beneficial division of labor between spouses, in particular the relative wage difference. The underlying assumption is that there are gains from the division of labor within the family. This assumption can be directly studied for actual specialization of German couples. A couple is considered fully specialized if one partner is employed full time, self-employed or on maternity leave, while the other partner is retired or does not, or only occasionally, participates in the labor market. The respective status is assessed separately each year. During the first 7 years of marriage, 31 percent fit the criterion of full specialization, while 46 percent are dual-income couples. Other combinations of labor market status represent 23 percent of the households. In order to apply a difference-in-differences approach, as in subsection a), it has to be studied whether individuals specializing during marriage reported systematically different well-being scores when they were unmarried. Two groups are formed according to whether an individual was living half or more than half of the observed number of years during the first seven years in a relationship with full specialization. Control variables are the same as for potential specialization in Figure 4.

Figure 5 shows the results of the analysis. The solid line indicates that couples specializing after marriage are better off in terms of life satisfaction than dual income couples. For the first seven years of marriage, the differences for full specialization are jointly statistically significantly different from zero (Prob > F = 0.07). However, before marriage, a small positive difference already seems to exist in subjective well-being between those who will specialize after getting married and those who will not, indicating some degree of selection. While there is some evidence for the specialization hypothesis, the actual division of labor might be more likely for intrinsically happier people.

¹² An F-test for the seven dummy variables that capture the differences in life satisfaction in the seven years before marriage is statistically significant at the 95 percent level.

[Figure 5 about here]

Full specialization in modern societies has a touch of conservatism. In particular, when it means that 96 percent of the cases follow the traditional role model of a husband going out to work while the wife takes care of the household and the children, and only 4 percent specialize the other way round. Specialization in this traditional sense has therefore often been criticized on the grounds of being pleasant for men but discriminating for women. To our surprise, a separate analysis for men and women brought up a completely different finding. Men in marriages with specialization are as satisfied as those in marriages without specialization, and the two groups show similar well-being patterns before marriage. In contrast, women who, after marriage, live in households with complete division of labor report, on average, much higher life satisfaction scores than their female colleagues who did not specialize. One explanation for this phenomenon could be the fact that women still do most of the housework, independent of whether they also participate in the labor market. The stress resulting from two jobs might reduce subjective well-being most markedly for women with children. Figure 6 indeed shows that specialization contributes in particular to the well-being of spouses with children.

[Figure 6 about here]

Both graphical analyses in this subsection present evidence for benefits from actual specialization. However, Figures 5 and 6 also indicate that, on average, these benefits are chronologically restricted. The gap in life satisfaction between specialized and non-specialized couples diminishes with the number of years they are married. After eight years, the two groups report similar average satisfaction scores.

c) Differences in education

Numerous theories of marriage emphasize emotional support and companionship as sources of marital happiness, sometimes connected to shared beliefs and values. Often they are related to homogamous couples, for instance with regard to social status. Here, we look at couples' differences in the level of education, measured by the number of years of schooling. It is hypothesized that couples with small differences in the level of education gain more from marriage than those with large differences.

Figure 7 presents the result of a graphical analysis applying the same test strategy as in subsections a) and b). Now the whole set of control variables as listed in Table 1 is included. For the years before marriage, there are no systematic differences in the well-being of people who end up in marriages with small and large differences in education. However, after marriage, couples with differences in education below the median report, on average, higher satisfaction with life. For the first seven years, the joint statistical significance of the differences is higher than 99 percent. This finding supports the hypothesis that couples with similar educational background benefit more from marriage.

[Figure 7 about here]

4 Concluding remarks

Marriage is a fundamental institution in society. In this paper, we employ data on people's reported subjective well-being in order to study this institution. Knowledge about spouses' happiness or life satisfaction complements research on the effects of marriage on people's health and income. Insights from these analyses may contribute to the public discussion about the value of intact marriages and legislators' debates about marriage penalties in tax codes or the effect of

welfare programs and social security on marriage. Moreover, empirical evidence on different couples' utility level can indicate through which channels they reap well-being in marriage. Economists, psychologists and sociologists emphasize quite different aspects and incorporate them in their theoretical models.

The starting point of the analysis was the solid finding in cross-disciplinary subjective well-being research that married people are happier or more satisfied with their life than singles. In our empirical analysis for German residents between 1984 and 2000, we try to refine this finding. We address two sets of hypotheses: selection and the so-called protection hypotheses.

We find evidence for selection: singles who we know will get married are happier than their colleagues who will stay single, even after taking important observable socio-demographic characteristics into account. There is a strong age pattern in this selection effect. Those who marry young are on average singles with above average life satisfaction. By the age of 30, singles who will marry report no different subjective well-being than those who will not marry. After 30, the prospective spouses are again a systematically more satisfied selection. It is unlikely that these selection effects can explain the entire difference in well-being between singles and married people. Until age 34, married people, on average, report higher life satisfaction scores than those singles who will get married later. As the gap between the two groups is substantial, it is unlikely to be due to time patterns in selection, i.e. due to the larger selection effects for those marrying at a young age. Besides selection effects into marriage, we also find evidence for selection effects out of marriage. People who get divorced were not only less happy during marriage but also less happy before they got married.

Unobservable characteristics that are related to individuals' subjective well-being are not the only source of selection effects. It is likely that those people who expect to profit the most from the respective marital status remain single or get married. Important complementary research has therefore to study widowhood and divorce, where changes in marital status may often occur unexpectedly. However, it is unclear how well people can predict the gains in well-being from

marriage. Marriage patterns indicate that people do not seem to learn much. Therefore, marriage has been counted among the “behavioral anomalies” (Frey and Eichenberger 1996).

Gains from marriage or protection are studied following two lines of arguments. First, we find evidence that supports the specialization hypothesis emphasized in economics. Compared to their life satisfaction before marriage, couples with large relative wage differences, and thus a high potential gain from specialization, benefit more from marriage than those couples with small relative wage differences. Moreover, spouses practicing the division of labor report on average higher life satisfaction than dual income couples. Mainly women and couples with children benefit from actual specialization. However, the findings indicate that there are no systematic differences between the two groups after 7 years of marriage. Second, our results also support theories emphasizing the importance of similarities of partners. Similar or homogamous partners are expected to share values and beliefs in order to facilitate a supportive relationship. We find that spouses with small differences in their level of education gain, on average, more satisfaction from marriage than spouses with large differences. This sheds light on an aspect often neglected in the economic analysis of marriage: companionship. The enjoyment of *joint* activities or the absence of loneliness and the emotional support that fosters self-esteem and mastery are all important non-instrumental aspects contributing to the individual well-being of married people. These aspects are more difficult to study in econometric analysis than is the division of labor. Moreover, they are not only important in themselves, but may lead to different predictions in economists’ models of the marriage market.

Future research in economics on the relation between marriage and happiness might study whether changes in social policy are reflected in single, married or divorced people’s subjective well-being, and non-cooperative theories of marriage could be confronted with empirical findings for the utility distribution between spouses.

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Appendix

Sample selection

The analysis in this paper is based on the scientific use data from the first 17 waves of the German Socio-Economic Panel Study. Observations from single people and married people are taken into consideration. For the selection analysis, people can be married for the first time or remarried. For marriage gains, only first marriages are taken into account. Persons with non-single entries before marriage are therefore dropped. Data coding allows for missing entries. However, when there are gaps of two or more years during marriage, the individuals are not included in the data set. This excludes the possibility that people can get divorced and re-marry during that period. The sample is also restricted to people who have no missing observations between their time as singles and as spouses. If there are missing observations, it is not possible to exactly determine between which two subsequent years people have married. People who indicate that they are married but live apart are not considered to be married when they are mentioned as being divorced the following year. However, if they are married and live apart either at the beginning of their marriage or for less than two years during their first marriage, they are considered to be married.

Table 1: MARRIAGE AND SATISFACTION WITH LIFE

Dependent variable: satisfaction with life

| | OLS | | OLS with individual fixed effects | |
|------------------------------------------|-------------|---------|--------------------------------------|---------|
| | Coefficient | t-value | Coefficient | t-value |
| Single no partner | | | Reference group | |
| Single with partner | 0.223 | 6.45 | 0.234 | 5.89 |
| Married | 0.336 | 13.47 | 0.287 | 7.59 |
| Married but separated | - 0.272 | -1.61 | - 0.248 | -1.80 |
| Age | - 0.053 | -19.81 | | |
| Age ² | 0.52e-3 | 17.31 | - 0.16e-3 | -3.62 |
| Male | | | Reference group | |
| Female | 0.072 | 6.88 | | |
| Years of education, ln | 0.281 | 10.44 | - 0.023 | -0.21 |
| Children | 0.027 | 1.72 | 0.009 | 0.50 |
| Head of the household or spouse | | | Reference group | |
| Child of the head of the household | 0.084 | 2.31 | 0.073 | 1.55 |
| Not child of the head of the household | - 0.414 | -7.81 | - 0.178 | -2.33 |
| Household income, ln | 0.320 | 32.43 | 0.175 | 14.27 |
| x child of the head of the household | 0.173 | 4.23 | 0.064 | 1.56 |
| x not child of the head of the household | 0.354 | 4.07 | 0.067 | 0.65 |
| No. of household members ^{1/2} | - 0.334 | -15.09 | - 0.280 | -9.28 |
| Employed | | | Reference group | |
| Self-employed | - 0.263 | -10.03 | - 0.107 | -3.19 |
| Unemployed | - 1.007 | -44.92 | - 0.674 | -31.75 |
| Some work | - 0.242 | -7.15 | - 0.120 | -3.90 |
| Non-working | - 0.125 | -8.36 | - 0.088 | -5.01 |
| Maternity leave | 0.140 | 3.15 | - 0.031 | -0.75 |
| Military service | - 0.365 | -2.76 | - 0.465 | -4.34 |
| In education | - 0.003 | -0.08 | - 0.005 | -0.14 |
| Retired | - 0.089 | -2.98 | - 0.009 | -0.30 |
| Western Germany | | | Reference group | |
| Eastern Germany | - 0.751 | -51.34 | - 0.505 | -5.08 |

Table 1 (continuation)

| Nationals | | | Reference group | |
|-------------------------|---------|--------|-----------------|--------|
| EU foreigners | 0.067 | 3.75 | 0.126 | 1.55 |
| Non-EU foreigners | - 0.193 | -11.03 | 0.048 | 0.64 |
| Constant | 7.307 | 222.03 | 7.378 | 129.13 |
| Year dummies | Yes | | Yes | |
| Number of observations | 133952 | | 133952 | |
| Adjusted R ² | 0.075 | | | |
| Overall R ² | | | 0.050 | |

Data source: GSOEP.

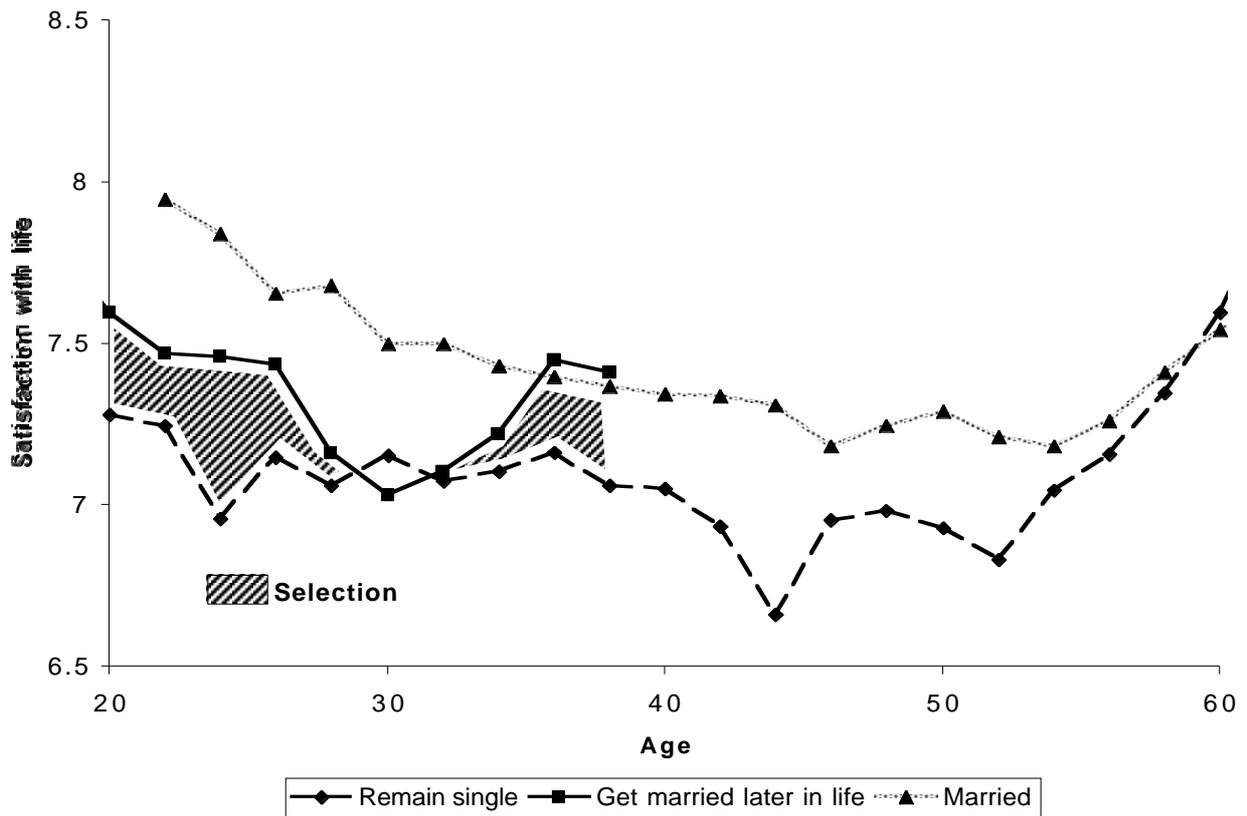


Figure 1: DO HAPPY PEOPLE GET MARRIED?

Note: The graph represents the pattern of well-being after taking respondents' sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

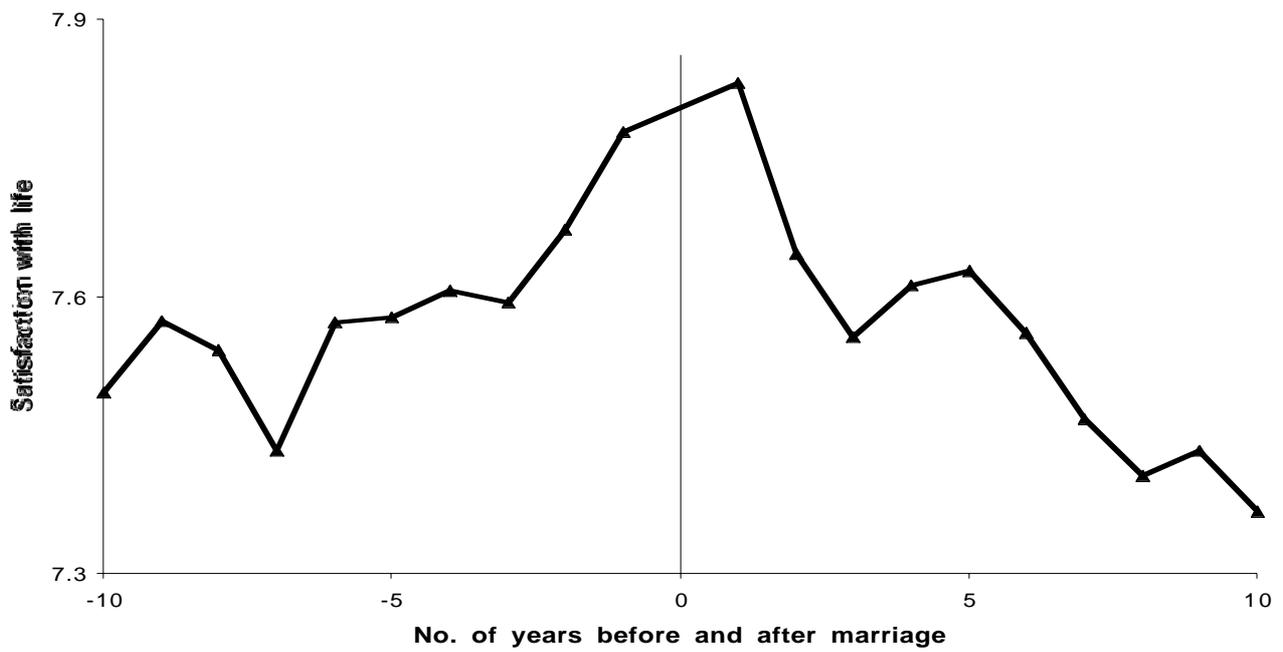


Figure 2: LIFE SATISFACTION AROUND MARRIAGE

Note: The graph represents the pattern of well-being after taking respondents' sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

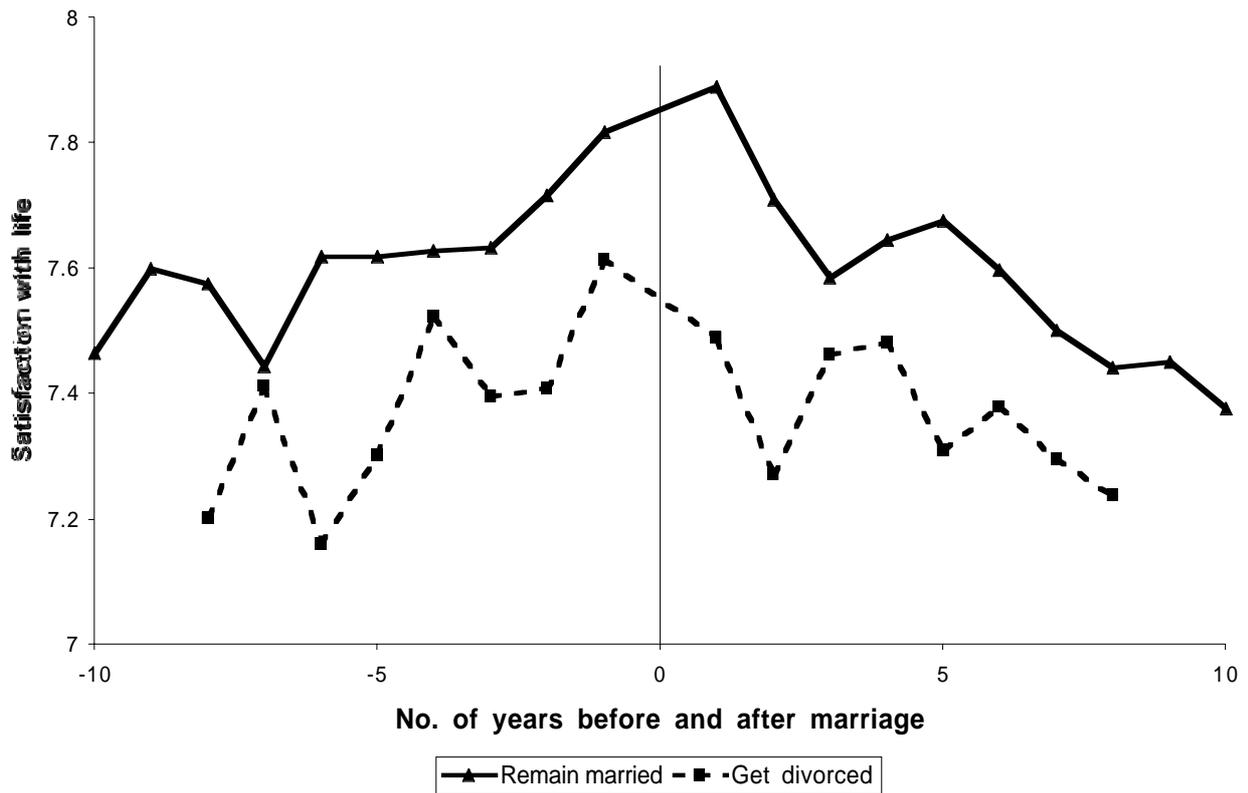


Figure 3: LIFE SATISFACTION AROUND MARRIAGE FOR COUPLES WHO STAY MARRIED AND COUPLES WHO GET DIVORCED

Note: The graph represents the pattern of well-being after taking respondents' sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

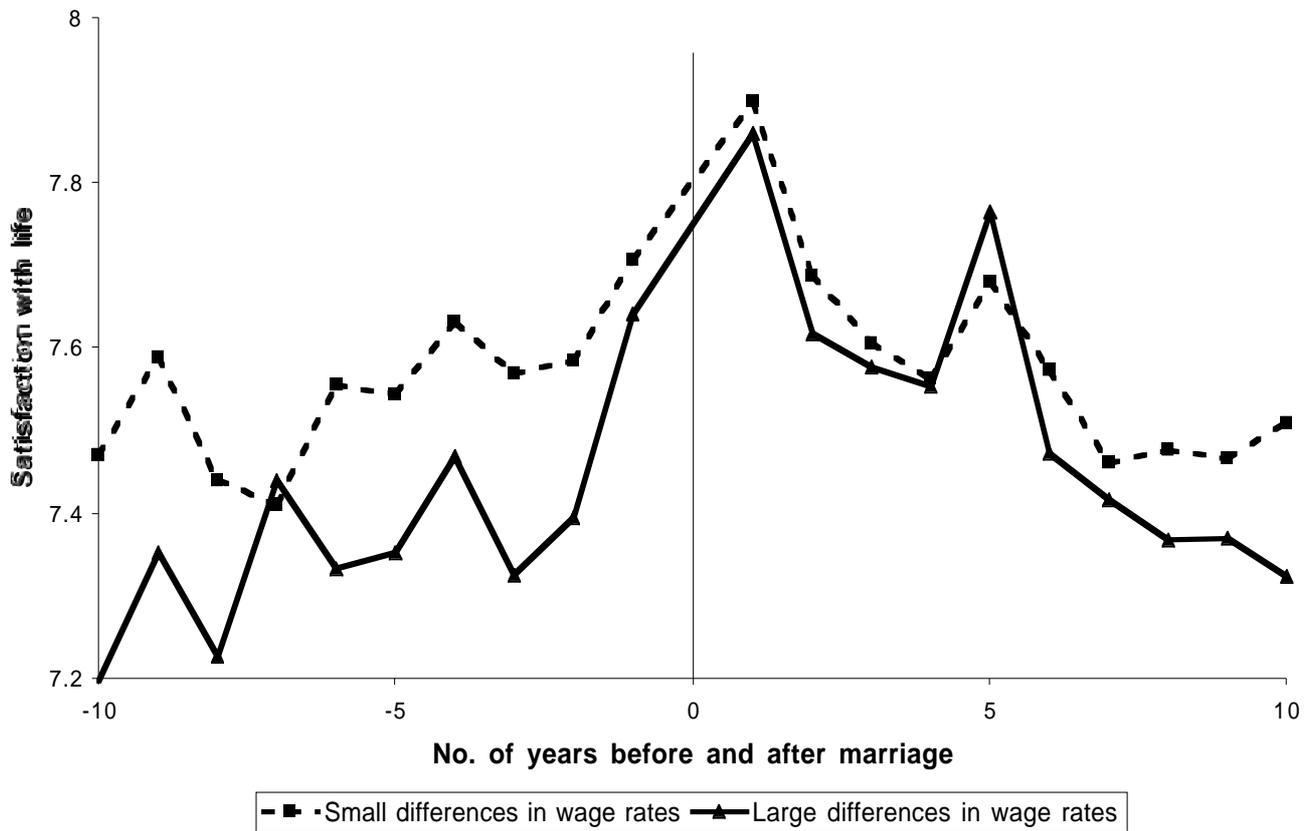


Figure 4: DIFFERENCES IN THE (SHADOW) WAGE RATE BETWEEN SPOUSES AND ITS EFFECT ON LIFE SATISFACTION AROUND MARRIAGE

Note: The graph represents the pattern of well-being after taking respondents' sex, age, parenthood, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

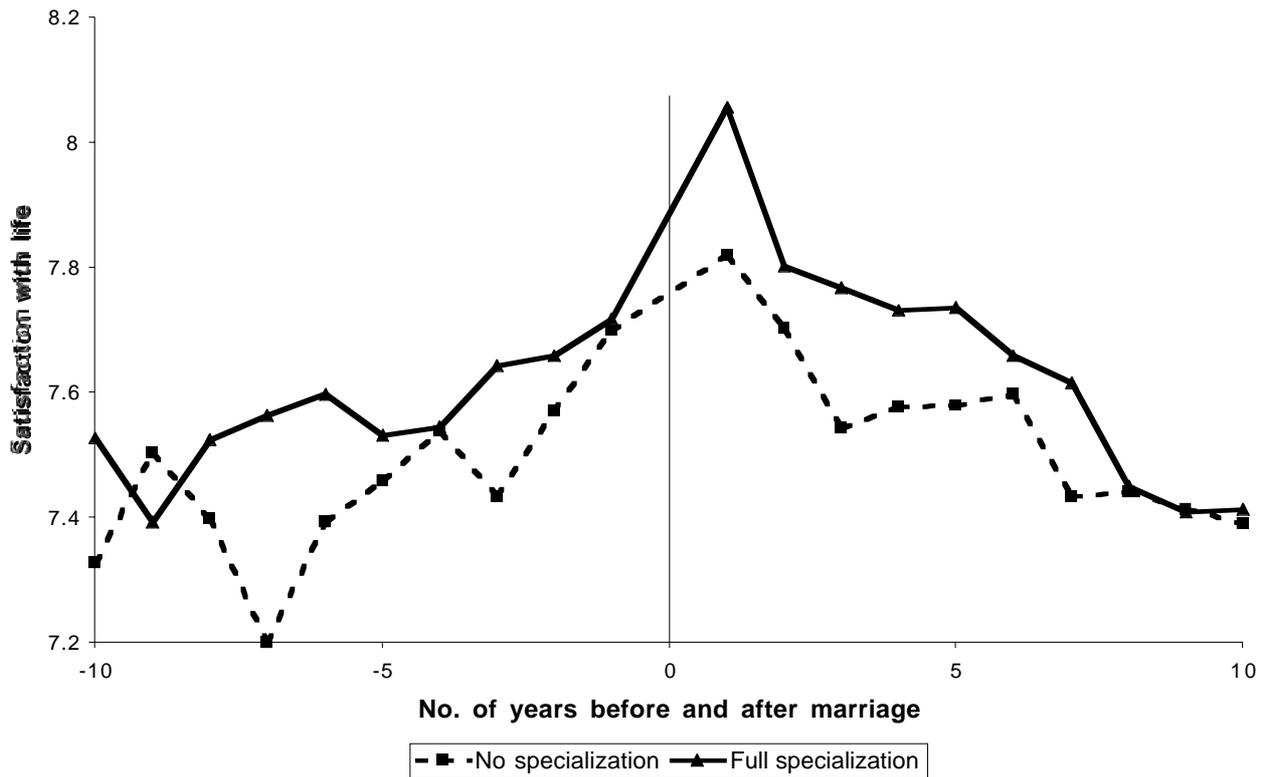


Figure 5: DIVISION OF LABOR BETWEEN SPOUSES AND LIFE SATISFACTION AROUND MARRIAGE

Note: The graph represents the pattern of well-being after taking respondents' sex, age, parenthood, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

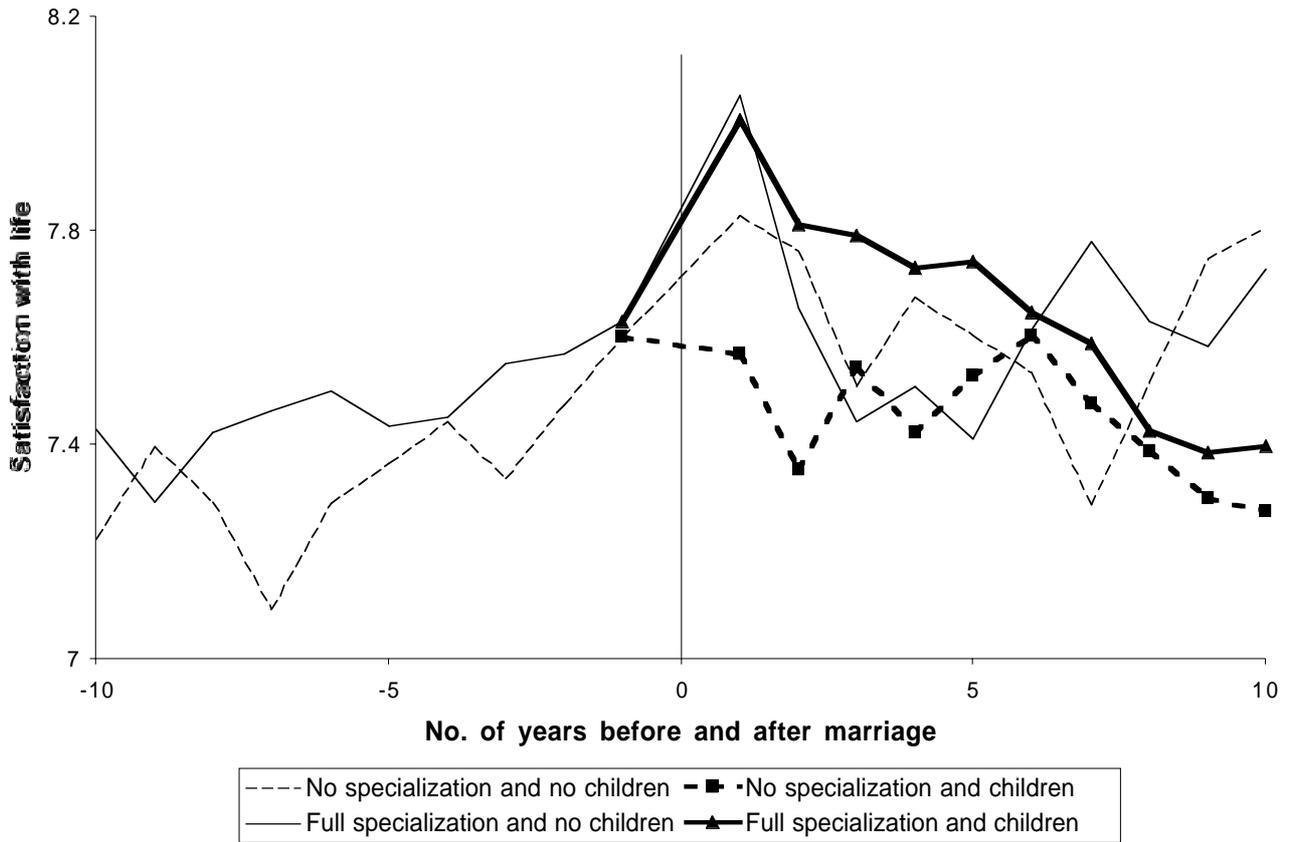


Figure 6: PARENTHOOD, DIVISION OF LABOR AND LIFE SATISFACTION AROUND MARRIAGE

Note: The graph represents the pattern of well-being after taking respondents' sex, age, parenthood, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.

Data source: GSOEP.

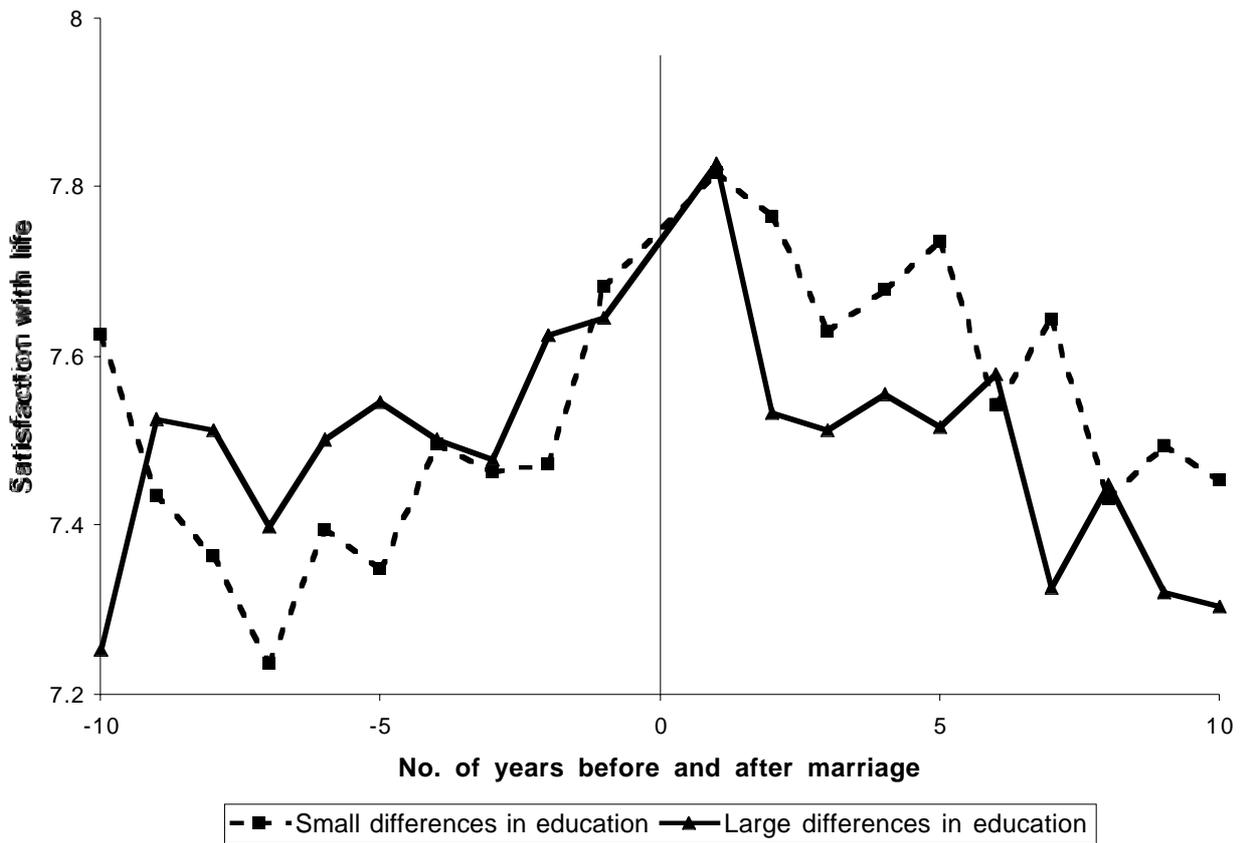


Figure 7: DIFFERENCES IN THE LEVEL OF EDUCATION BETWEEN SPOUSES AND ITS EFFECT ON LIFE SATISFACTION AROUND MARRIAGE

Note: The graph represents the pattern of well-being after taking respondents' sex, age, education level, parenthood, household income, household size, relation to the head of the household, labor market status, place of residence and citizenship into account.
Data source: GSOEP.

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