A Life Course Approach to the Relationship between Health Inequalities and Marital Trajectories

Abstract

This study investigates the influence of early childhood health on subsequent partnership trajectories of older adults in 13 European countries using SHARELIFE data (N=24,183). After describing partnership trajectories of older adults into six groups representing different ideal types of partnership trajectories (by using sequence analysis with focus on quantum and ordering), results from multinomial logistic regression models based upon a theoretical framework of cumulative exposure suggest that there is a direct link between bad childhood health and the probability of following a non-traditional partnership trajectory. Experiencing divorce, remaining single over the life-course or having a complex trajectory of multiple marriages disrupted by divorce and widowhood are associated with worse childhood health, compared to having a stably married trajectory. We conclude that even after controlling for childhood and adult socioeconomic conditions, as well as fertility, a social selection into marriage appears to exist for both older men and women.

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Introduction

Previous research has focused extensively on the relation between marital status and health (see e.g. Koball et al., 2010; Mirowsky, 2005; Schoenborn, 2004; Umberson et al., 2006; Wood et al., 2007). Several studies have found that married people are healthier, happier, and less likely to engage in health threatening behaviors (for a review see Schoenborn, 2004; Wood et al., 2007). Further advances in life-course research examining the incidence of chronic diseases and marital histories have discovered that age-associations in disease are slowed down by longer duration in marriage, thus they have emphasized the importance of time spent in marriage (Dupre & Meadows, 2007). Studies on mental health have also demonstrated the effects of marital history (Horwitz and White, 1998; Lamb et al., 2003; Meadows, 2009; Soons and Kalmijn, 2009) for example, individuals who are currently divorced or widowed for the first time report better mental health than those with more marital disruptions (Barrett, 2000). With regards to mortality, studies found that both men and women show declines in the hazard of dying when they marry, and the effects appear at marriage for men and cumulate with duration of marriage for women (Lillard and Waite, 1995). Similarly, divorce or separation increases the risk of death only for women (Hemström, 1996).

The benefits associated with marriage, generally called "the protection effects of marriage", are usually prescribed to four different explanations: institutionalization, social roles, social support and commitment (Musick and Bumbass, 2006). Thus, the benefits of marriage are associated with marriage being an institution where spouses have socially defined roles inside and outside marriage, with receiving social support from one's spouse in the form of intimacy, companionship and daily interaction, and in addition, with the public nature of marriage that strengthens commitment and joint long-term investments. Although there is an extensive

literature on the association between marital status and health outcomes, beside the "protection effects" of marriage there has been substantially less attention devoted to the "marriage selection effects" (Waldron et al., 1996). The "marriage selection effects" hypothesize that marriage is associated with good health because healthier individuals are more likely to marry and stay married. Recognizing the limitations of studying this relationship among older adults at a single point in time and in light of the absence of studies that investigate the life-course experiences that shape health and socio-economic inequalities in later life, our research attempts to address how early childhood health shapes the life-course trajectories of older adults in Europe.

The aim of the current study is to compare and contrast the effects of childhood health on subsequent partnership trajectories. To achieve this goal, first we describe the partnership trajectories of older adults to reveal the relation between different partnership trajectories with various socioeconomic characteristics, namely country, education, childhood socioeconomic status and childhood health. Further, we focus on answering our main research question: What are the differences between marital trajectories in relation to childhood health?

Our study builds upon existing research in several ways. First, we build upon previous studies on family formation that describe the complex changes in partnership and parenthood patterns in Europe. They have mostly focused on young adults, and the interplay between partnering and parenting (Billari and Liefbroer 2010; Billari and Willson 2001; Leshaege and Neels 2002; Mills 2004; Potarca, Mills and Lesnard 2013). We describe the partnership trajectories of older men and women, revealing the heterogeneity of partnership histories of older adults in Europe, thus gaining insight of the life-course partnership dynamics. Second, although many studies have found that health problems in youth and low childhood socioeconomic status (SES) are related to social and health inequality at a later age (Brandt, Deindl, and Hank, 2012;

Deindl 2013; Morton, Schafer, and Ferraro, 2012), there are very few studies that have addressed the link between early health and marriage (Hope, Rodgers, and Power, 1999; Lamb, Lee, and DeMaris, 2003; Mastekaasa, 1992). Third, studies that engaged in marital selection have focused on young adults and their first transitions to marriage (Cheung and Slogghett 1998; Hope, Rodgers, and Power, 1999; Joung et al 1998; Simon 2002) thus they are unable to capture how health affects subsequent transitions in and out of marriage and the duration of these states. Although informative, this approach neglects the complexity of life-course transitions that account for the greater heterogeneity in partnership trajectories and underestimates the effects of possible disruption of the marital union. Our study moves beyond investigating marital outcomes at a single time point and instead takes into account the partnership transitions over the life-course. This is achieved by modeling the entire partnership history of middle aged and older adults. This strategy enables us to understand partnership histories from a "holistic" perspective (Mills, 2011), providing simultaneous information about the incidence, timing and order across time (Barban, 2013; Barban and Billari, 2011).

A related and fourth contribution is that we move beyond the examination of young adults and instead we focus on the middle age and old age individuals living in 13 European countries. Previous research done on the influence of health on later marital events has used US samples (Horowitz et al 1996; Lamb, Lee, and DeMaris, 2003; Murray 2002, Simon, 2002) or has focused only on partnership events in early adulthood (Cheung and Slogghett, 1998; Joung et al., 1998). As marital life-course histories between American and European counterparts differ significantly due to various historical and demographic trends (see Mills and Blossfeld, 2008; DiPrete, 2002; Reher, 1998), our study contributes to the larger body of literature that

investigates the "destandardization" (Lesthaege and Moors 2000, Mills 2004, Macmillan, 2005; Potarca et al 2013) or pluralization of life courses (Billari, 2004; Kuijsten, 1996).

After outlining the theoretical approach of the study based on the cumulative exposure models and summarizing recent research on the association between health and partnership, we proceed with describing the partnership trajectories of older Europeans. Using data from the third wave of the Survey of Health, Ageing and Retirement in Europe SHARELIFE we first examine the partnership trajectories of older men and women by means of sequence analysis (Billari, 2005) followed by grouping similar partnership trajectories. We then engage in a multinomial logistic regression of the prominent patterns or trajectories to assess whether a certain type of trajectory is significantly related to childhood heath, controlling for country, cohort, childhood and adult SES, and fertility. After the description of results, we discuss the findings and draw conclusions in light of our research question and the theoretical foundation of the study.

The influence of early childhood health on family processes

Scholars have highlighted the importance of time and timing, noting that many health conditions have long latency periods and their associated biological, social and behavioral risk factors have their own natural histories that unfold over the life course (Lynch and Smith, 2005). Health itself has been identified as a type of life-course capital that can be depleted or protected over time on the basis of a number of individual and structural factors (O'Rand and Henretta, 1999). There are two main models on how early life can influence late life outcomes: the pathway and the latency model (see Haas, 2008; Zhang, Gu and Heyward 2008). Whereas the latency model supposes a direct link between early life on later life outcomes, where exposure to unfavorable health and SES conditions has a long lasting impact on later outcomes (Hertzman and Power, 2004), the

pathway model differentiates between direct and indirect influences. Namely, the pathway model assumes that early adversity impacts later outcomes mainly through indirect pathways. An example of the later is when bad childhood health together with low SES during childhood results in a bad health during adult life that has a direct influence on employment and SES in middle age (e.g. Case, Fertig and Paxon, 2005).

The pathway model is frequently combined with the cumulative advantage/disadvantage theory (CAD) that specifies the mechanisms and patterns through which socioeconomic inequalities in health develop over time (for review see Corna, 2013), describing a process whereby initial relative disadvantage associated with structural location and resources results in systematic divergence in life-course processes across individuals or groups over time (Dannefer, 2003; O'Rand, 1996). Building on the status attainment model developed earlier by Blau and Duncan (1967) and the earlier work of Merton (1968), CAD postulates that those experiencing disadvantages in early life are subsequently denied from advantages that they will otherwise confer during the life-course if early disadvantage was not present. In contrast, individuals with more advantages in early life will have higher rates of return to initial circumstances relative to those with less advantageous beginnings (DiPrete and Eurich, 2006, Willson et al 2007).

We adopt the so called "chains of risk" pathway model (Ben-Shlomo and Kuh, 2002: Hertzman and Power, 2006) to articulate how early childhood health conditions influence further partnership trajectories. Drawing from the approach of Ferraro, Shippe and Schafer (2009) that integrate the concept of CAD with life-course theory more broadly to increase its applicability and opportunities for empirical assessment, we use it to explain the de-standardization of partnership trajectories. Since the application of this pathway model to partnership histories is

not as straightforward as concerning other later life outcomes (such as adult health or SES), an indirect approach is necessary.

The social selection into non-traditional partnership trajectories

The concept of social selection assumes that the traits and dispositions of individuals influence both their social circumstances and their future emotions and behaviors (e.g., McLeod and Kaiser, 2004). Therefore, the relationship between health and family processes, including partnership biography, is explained by individual differences in the personal characteristics that affect both the individuals' future SES and family relationships (see review Conger, Conger and Martin, 2010). With regards to partnership, the social selection perspective argues that healthy individuals are more likely to select themselves into marriage and stay married compared to their unhealthy counterparts. Healthy individuals may be more likely to possess certain characteristics that will make them more desirable marriage partners, such as physical attractiveness, higher income and better emotional health (Wood et all., 2007). In contrast, those in poor mental or physical health may lack the resources and energy necessary to find a spouse. Married individuals who are healthier may be better able to contribute financially to the household, and if they are in good mental health they may promote better communication and more affection, which will lead to fewer divorces (Koball et al., 2010).

In contemporary societies, the break-up of a marriage or a cohabitational relationship is an increasingly common life course event (Andersson and Philipov, 2002), however we expect that older adults are more likely to follow a traditional partnership trajectory with little or no disruptions where stable marriage is the most prevalent trajectory. Research on divorce has shown that various factors contribute to one's risk of experiencing a divorce, such as early age at first marriage, poverty, unemployment, low level of education, cohabitation prior to marriage,

racial heterogamy, bringing children from a previous union into a new marriage, higher order marriage and growing up in a household without two continuously married parents (see review Lyngstad and Jalovaara, 2010). In addition, having divorced siblings, friends or coworkers also increases the chances to get divorced (Dermott, Fowler and Christakis 2009).

With regards to cohabitation, there is great variation among European countries in the rates and characteristics of cohabitors. In some countries like Sweden and to a lesser extent in other Scandinavian countries, cohabitation is the modal pathway into marriage, while in others like Italy, this is not the case (Kiernan, 2001). In contrast to the US where cohabiting parents have on average lower socioeconomic status than married parents (Carlson, McLanahan, and England, 2004), in Scandinavian countries and the Netherlands they tend to be more similar to marred individuals on various socioeconomic indicators than to divorced individuals (see review Lyngstad and Jalovaara, 2010). Although research suggest that the rates of dissolution are generally higher for cohabitors than for married couples, even if the partners have common children, a comparative study of 16 European countries reported that the risk of divorce for former cohabitors is higher than that of people who married directly only in countries where premarital cohabitation is either a small minority or a large majority phenomenon (Liefbroer and Dourlejin, 2006). Recent findings for the influence of premarital cohabitation on divorce suggest that there is a strong selection into cohabitation that accounts for the higher divorce rate among premarital cohabitors (Brüderl, Diekmann and Engelhardt, 1997; Lillard, Brien and Waite, 1995; Svarer, 2004).

Based on that, we anticipate that individuals with worse childhood health will have more chances to have experienced divorce or remain unmarried, thus entering a non-traditional partnership trajectory. Partnership history is closely intertwined with fertility history and

previous research has showed that higher order births reduce the risk of divorce in Italy and Spain, while in Denmark, a birth increases the risk of divorce (Coppola and Di Cesare, 2008; Svarer and Verner, 2006). Children seem to have little effect on the risk of divorce in Sweden (Andersson, 1997). Having a first birth within wedlock has been reported to decrease the risk of divorce in Norway and Sweden (Kravdal, 1988; Liu, 2002), an effect most likely due to selection of particularly stable couples into marriage before the first birth. The increase in divorce risk over (historical) time can be a cohort-driven phenomenon, and different cohorts may bring, for example, different experiences, resources, and expectations to their unions, and these differences may translate into higher divorce risks for younger cohorts (Lutz, Wils, and Nieminen, 1991).

There are a lot of additional factors that have been shown to influence partnership trajectories. Various studies have examined in what ways higher adult SES reduces the risk of separation and divorce and also increases the quality of romantic unions (see e.g. Karney and Bradbury, 2005). For example, higher levels of educational attainment are associated with greater marital stability, and research has shown that greater income and financial resources are positively associated with marital stability. Amato and colleagues (2007) showed that lower levels of income, educational attainment, and occupational prestige were associated with higher rates of marital problems, less marital happiness, and greater instability. As adult SES is strongly related to childhood SES, in order address selection and avoid endogeneity issues we will consider the influence of childhood SES on subsequent partnership trajectories.

Data, Measurement and Methods

Data

The data we analyze is taken from the third wave of the Survey of Health, Ageing and Retirement in Europe SHARELIFE (Börsch-Supan, Hank, Jürges, & Schröder, 2010) and the baseline interviews from the first two waves conducted in 2000-05 and 2006-07, respectively (N=24,183). SHARELIFE data are available for non-institutionalized respondents aged 50 or older from 13 European countries (Austria, Belgium, the Czech Republic, Denmark, France, Germany, Greece, Italy and the Netherlands, Poland, Spain, Sweden and Switzerland) who had already participated in at least one wave of the previous SHARE waves. The study includes data for both men (n=10,765) and women (n=13,418), consisting of 92.16% of the original SHARELIFE sample. We excluded from the analysis 2 respondents who were born before 1910, respondents who had missing information on any on the independent variables (7.3%) and 126 respondents with implausible partnership trajectories (0.53%). Appendix Table 1 provides the descriptive statistics of all variables used in the regression analysis.

Measurement of variables

Dependent variable

Partnership trajectory. An advantage of the SHARELIFE is that it includes data on the occurrence and timing of partnership events spanning over the entire life of the respondents up until the date of interview. Respondents reported the starting and (if relevant) ending dates of all cohabiting and martial unions, as well as the occurrence and timing of all possible marital disruptions such as divorce or death of a spouse. We then created a complete sequences of yearly partnership states between the age of 15 until the date of the interview. The age of 15 was chosen

as a start of partnership history as a customary point in previous research regarding partnership and fertility histories (Barban, 2013) and in order not to overlap with the period of early childhood. The state space was designed to take 5 possible values: S (single), C (cohabiting), M (married), D (divorced), and W (widowed). Table 2 provides the descriptive statistics of the ten most common partnership transitions separately for men and women. Detailed inspection of trajectories revealed 103 distinct trajectories out of which 36 trajectories were considered as implausible and as described in the data section, they are removed from subsequent analysis. By focusing on the occurrence and on the ordering of events we classified the similar trajectories into 6 ideal type groups: stably married, stably widowed, divorced, never married, cohabiting and complex trajectories. Appendix Table 3 shows the relative distribution of each sequence in the overall sample.

Independent variables

Childhood health. We made use of SHARELIFE's existing extensive list of childhood diseases up to the age of 15, out of which we constructed two childhood illness variables. This reduced the measurement error in comparison to using a self-assessment of childhood health and provided more accurate comparison between individuals with same or similar diseases. The childhood illness variable is constructed out of the list of chronic childhood illnesses. Because the original distribution of the number of illnesses was highly right-skewed, we grouped all respondents who had 4 and more disease into a single category. In addition, we constructed an alternative childhood disease variable that categorized diseases into three categories, namely following SHARELIFE's typology of diseases: no childhood illness, type one childhood illness (which includes infectious diseases, asthma and other respiratory problems, other allergies, chronic ear problems, speech impairment and meningitis or encephalitis) and type two childhood

illness (which includes broken bones/fractures, severe headaches and migraines, epilepsy/seizures/fits, emotional/psychological problems, appendicitis, diabetes/high blood sugar, heart trouble, leukaemia/lymphoma, and cancer/malignant tumor).

Childhood SES. We measured childhood SES with multiple indicators capturing the childhood housing conditions, social background, cultural capital and family conditions. All information on childhood SES was asked for the age of 10, and the age 10 cut-off is consistent with the child development literature which documents that cognitive and non-cognitive skills developed by age 10 are important determinants of labor market and health disparities in adulthood (Conti, Heckman and Urzua, 2010). Housing conditions are operationalized as a number of people per room and partly capture the socioeconomic background of the family. The variable was created by dividing the number of people in the household by the number of rooms (ranges from 1 to 10). Social background is operationalized as the main occupation of the breadwinner in the family using the International Standard Classification of Occupation (ISCO) typology into 6 categories (farmer, high-skilled white collar, low-skilled white collar, high-skilled blue collar low-skilled blue collar, no main breadwinner). Cultural capital is measured by the number of books in the household ranging from "none or very few" (0-10) to up to enough to fill two or more bookcases (more than 200). Although the variable number of books is ordinal in scale, additional analysis showed that it can be treated as a metric variable ranging from 0 to 5 (see Brandt et al 2012; Deindl, 2013). Family conditions were operationalized as whether the respondent lived without at least one biological parent. Previous assessment of the reliability of SHARELIFE found the retrospective reports of childhood conditions and health to be reliable, therefore assuring for the quality of the SHARELIFE data (Mazzonna and Havari, 2011, Havari and Perachi 2011).

Education. Apart from childhood health and SES conditions, we included a measure of education from Wave 1 or 2 (the questions regarding education are asked at the first time point for each individual) as an indicator of adult SES. Education was categorized following the International Standard Classification of Education (ISCED), grouping education levels in three categories: low (ISCED level 0,1 and 2), medium (ISCED levels 3 and 4) and high (ISCED levels 5 and 6). We opted for education instead of using income because education is usually attained in early and mid-adulthood and tends to be more stable indicator of SES than income which can fluctuate and most often decreases in later life as individuals progressively leave the workforce.

Cohort. We distinguished between 4 birth cohorts, which represent groups born during 4 different decades of the previous century. Building upon Mayer's (2001) life-course regimes framework, the first cohort represents the pre-early industrialist cohort (1910-1922), followed by the early industrialist cohort (1923-1940), the third cohort is the industrialist cohort (1941-1950), followed by the fourth contraceptive revolution cohort (1961-1960). We chose Mayer's typology instead of a 5 cohort classification into decades because it takes into account the most important historical events of the century and the development of various structural conditions regarding education, work, the welfare state, all which are domains that structure partnership histories over the life course.

Fertility history. Since partnership trajectories are closely related to fertility history, in our analysis we took into account the number of children that respondents reported. As the number of children has highly skewed distribution and the average number of children per country does not surpass 3, we grouped respondents with 3 or more children into a single category.

Country. We included country dummy variables as country fixed effects which are an effective way to control for cross-national differences in factors such as cultural norms are related to partnership behaviour.

Analytical strategy

In order to capture the dynamics of the partnership history and be able to both describe and explain the differences in partnership trajectories, we engaged in multiple analytical methods including sequence analysis and multinomial logistic regression analysis. Sequence analysis has been adopted in demography to study complex phenomenon in order to simultaneously study multiple demographic transitions (see Billari 2001, Barban and Billari 2012). Although it is frequently used together optimal matching (OM) and cluster analysis, we opted for giving precedence of the occurrence and the ordering of events, instead of the duration spent in each state. We classified the similar trajectories into ideal type groups (stably married, stably widowed, divorced, never married, cohabiting and complex trajectories) based on their similarity and frequency. In order to investigate how these groups differ in terms of compositional characteristics, in particular by country, childhood SES and childhood health status we present Figures 1 to 4 to describe the relations of partnership trajectories with each characteristic. (An alternative analytical strategy pursuing optimal matching (OM) and cluster analysis with a 5 cluster solution rendered very similar results with regards to the effects of childhood health on partnership trajectories).

The group typology of partnership sequences is later used as an outcome variable in a multinomial logistic regression model, which allows us to answer our main question of interest. The reference category is the stably married group, referred also as traditional trajectory because

it contains most of the respondents. It is comprised of individuals that are stably married following a period of singlehood or cohabitation. The assumption of independence of irrelevant alternatives assessed with the Hausman test holds true for the partnership trajectory variable. Significance was assessed by performing a likelihood ratio test and examining whether or not the inclusion of additional control variables in the model improves the model fit. For the sake of parsimony and interpretation of results, we present the final models in Table 4 and Table 5 that included all the control variables and discuss the theoretical implication of the results with all covariates. In order to reveal more detail, we briefly outline the results of additional multinomial regression models where we test the influence of separate childhood illnesses on partnership trajectories. Due to the known gender differences in childbearing and marital timing we perform the analysis separately for men and women. Although our expectations do not explicitly relate to gender differences in the effects of early childhood health, the well-established gender inequality in adult SES and health between men and women, especially for older cohorts prompts the distinction.

Results

Description of partnership trajectories

As noted from Tables 1 and 2, the biggest partnership group contains the respondents that enter a marriage with or with or without cohabitation (66.12%), the latter group being very small part of the overall sample (1.22%). Next in relative size is the group containing the respondents that follow widowed trajectories, namely consisting of widowed respondents who have remained in that state up until the date of the interview (12.33%). The group of divorced individuals (6.70%) is made of respondents that have only one marriage and one divorce event in their sequences, and the never married (4.29%) are singles that have not entered cohabitation or marriage. We

distinguished also between the cohabiting group comprised of uninterrupted cohabitation during the life-course (1.90%) and the complex trajectories group that joins respondents that have serial marriages disrupted by divorce and widowhood (7.22%). Due to the very small number of individuals in many idiosyncratic sequences, we were unable to distinguish between serial divorcees and respondents that also have only widowhood as a marital disruption between multiple marriages. Examining partnership trajectories grouped in the dependent variable we observe socioeconomic clustering of various kinds (χ^2 tests for each of the relationships shown in Figures 1-4 revealed significant associations).

[Figure 1 around here]

When we look at Figure 1 considering differences in countries, we observe that as expected there are more stably widowed women than men, a result coming from both the gender difference in life expectancy, but also probably due to the slightly smaller proportion of women in the complex trajectory group. Sweden, Denmark and the Czech Republic are leaders in the complex trajectories group, and the same pattern can be observed for the cohabiting group as well.

[Figure 2 around here]

[Figure 3 around here]

Figure 2 demonstrates that unlike for the stably married, the number of childhood illnesses for both men and women has a gradient that increases in the divorced, cohabiting and the respondents following complex trajectories. With regards to education, we observe similar gradient as for the number of childhood illnesses in Figure 3, with greater heterogeneity in education between partnership trajectories for women.

[Figure 4 around here]

Lastly, Figure 4 depicts the relation between partnership trajectories and the main breadwinner's occupation of the respondents' family during childhood. Clustering of lower childhood SES with farmer and low collar professions is notable in the respondents following a stably married trajectory, whereas in the complex trajectories the high-skill white and blue collar professions are more numerous than the low-skilled ones.

Multinomial Logistic Regression Results

The results of the multinomial logistic regressions are shown in Table 4, presenting the full model with all controls (results from models without control variables available upon request). This is followed by Table 5 where only the results from the alternative childhood health variable are shown, controlling for all the variables included in Table 4. Relative risk ratios are shown, representing the exponent of the beta coefficients, which stand for the change in the odds of belonging to one group versus the standard reference cluster associated with a one unit change on the independent variable.

[Table 4 around here]

Our central premise is that individuals with worse childhood health will be more likely to follow a non-traditional partnership trajectory. The results presented in Table 4 support our expectations for men and women, namely women with more childhood illnesses are more likely to be in a divorced or complex partnership trajectory compared to a stably married trajectory. The results for men show a slightly different picture, where men with more chronic childhood illnesses are more likely to cohabit or be in a complex partnership trajectory compared to individuals following a stably married trajectory. The relationship between number of illnesses and partnership trajectory is not linear, which prompts us to investigate further how the type of illness can help explain the influence of health.

The results from additional multinomial regressions in Table 5 with an alternative childhood illnesses variable capturing two categories of illnesses defined by the SHARELIFE show that the by using an alternative specification of childhood health, it can still explain some of the difference in the likelihood to follow a non-traditional trajectory only for women. They partly support our expectations, namely women with type two childhood illness are more likely to follow a divorced, cohabiting and complex partnership trajectory.

With the goal to gain more detailed insight into how specific childhood illnesses can influence partnership trajectories we examine the influence of separate illnesses on partnership trajectories (results available upon request). For men, infectious diseases, heart trouble, epilepsy, difficulty with seeing even with eyeglasses, severe diarrhea and polio increase the chances of following a non-traditional partnership trajectory over the life-course compared to stably married. For women, even a greater number of illnesses seem to influence the likelihood to follow a non-traditional trajectory. The main difference to men comes in the significance of psychiatric problems, meningitis/encephalitis, asthma and appendicitis.

Looking at the other covariates in our models, childhood housing situation proved detrimental only for men being more likely to follow a stably widowed trajectory compared to the stably married one. Social background revealed that both men and women from families with higher occupational status of the main breadwinner were more likely to follow distinctive non-traditional trajectories. These results ascertain again about the importance of behavioral predispositions and structural factors that are tied with the rise of non-standard life-course trajectories. We observed the same pattern for cultural capital, noting that greater number of books was significantly related to following a complex trajectory for men and divorced never married or cohabiting partnership trajectories for women. The same results were obtained when

we controlled for age instead of cohort, suggesting that younger cohorts are not driving the results. The absence of at least one biological parent in early childhood was related to increased risk for men and women to follow a complex partnership trajectory, providing some evidence about the significance of early exposure of stress that most likely play a significant role in the selection into marriage through other factors such as later mental health and personality traits. The coefficients for the control variables for fertility history regarding the number of children and cohort differences did not provide surprising results, operating as anticipated. Individuals with more children were significantly more likely to follow the standard stably married trajectory in a rather linear fashion, whereas greater number of children reduced the likelihood for respondents to follow any of the non-traditional trajectories. Respondents born in later cohorts were more likely to follow the non-traditional trajectories of divorce or cohabitation, consistent with the findings from previous research.

Conclusion and Discussion

The goal of this study was to describe the partnership trajectories of older men and women in Europe, focusing on the life-course changes and their relationship with other socioeconomic charactersrics. Moreover, we compared and contrasted the effects of early chidlhood health on partnership trajectories. We achieved this goal by examining the variation of partnerhip formation with pooled data from 13 Europen countries, engaging into sequence analysis and multinomial logistic regressions.

We used the reasoning of patway models frequently employed in studies to investigate the influence of early chidlhood conditions and health on later life health (Brandt et al 2012, Deindl, 2013), appying a life-course cumulative disatvantage perspecive to study the partnerhsip

behavior of older adults in Europe. Omitted models with reduced number of adult SES covariates and without taking into account fertility showed more significant influence of the chidlhood health on partnership trajectories. In order to avoid endogeneity, we excluded any indicators of adult health and instead focused on the health that preseded the partnership events over the the life-span.

To the extent that many chidlhood and adult SES indicators partly reduced the influence of chidlhood health, we can conclude that the indirect approach can be a fruitful starting point to look into greater detail the impact of early health and SES on partnership, especially in later life. Our research, however, also suggests that despite the popularity of the indirect approach, taking into account the information for ferility behavior that is tied to partnership, we were able to find a direct link from childhood health to partnership history over the life-course. The main conclusion from investigating the partnership sequences of older adults showed that the most of older Europeans follow more traditinal partnership trajectories, with greater heterogeneity among the Northern Euroepan countries, and the more affluent, regaredless whether by chidlhood or adult SES.

The pattern of health disadvantage seems to be validated for individuals following a complex partnership trajectory for both men and women, and to some extent for the never married and cohabiting trajectories for men. Nonetheless, there are several issues that need to be addressed when interpreting the implication of such models. The use of partnership trajectories of older individuals prompts that it is possible that the effects of childhooh health cannot not be observed in older individuals as respondents with bad health are more likely to die younger and not be included, or to be dropped from the survey. This means however that there is greater danger of underestimating than overestimating selection effects of ealry health. In addition, the

right-censoring of respondents who are surveyed at different points in their lives hides a danger that there is an underestimation of the possible heterogenety that they might experience as they grow older.

This study was able to find some support for the selection of older individuls into marrriage, which prompts more research about the the impact of health on assortative mating and marriage/partnership homophily. Even though we did not engage into an explicit mapping of the childhood health – adult health relationship or the chidlhood SES – adult SES link, we were able to find some support for the selection of older individuls into marrriage. Our results have to be interpreted with caution because using retropospective data limits the proof of evidence for the marriage selction effects. The qulity of the SHARELIFE and the unique opportunity to study the histories of older adults that have both information on early chidlhood conditions and later partnership events, however, asserts that the results form our study can contribute to the growing body of life-course literature.

Table 2. Ten most common sequence patterns of partnership transitions

	Abbreviation	Men		Women		Pooled sample	
		n	%	n	%	n	%
Single – Married	S-M	7867	73.1	8153	60.76	16020	66.82
Single – Married – Widowed	S-M-W	520	4.8	2427	418.09	2947	12.2
Single	S	491	4.6	547	4.08	1038	4.3
Single – Married – Divorced	S-M-D	342	3.2	495	3.69	801	3.3
Single – Married – Divorced – Married	S-M-D-M	306	2.8	346	2.58	588	2.4
Single – Married – Single – Divorced	S-M-S-D	231	2.1	246	1.83	510	2.1
Single – Cohabiting	S-C	169	1.6	228	1.70	459	1.9
Single – Married – Single – Divorced – Married	S-M-S-D-M	164	1.5	149	1.11	318	1.3
Single – Cohabiting – Married	S-C-M	155	1.4	140	1.04	295	1.2
Single – Married – Widowed – Married	S-M-W-M	130	1.2	125	1.93	255	1.1
Total		24183	100	10765	100	13418	100

Notes: SHARELIFE release 1.0.0. Own calculations (N =24183).

Sequences labeled as follows: S (single), C (cohabiting), M (married), D (divorced), and W (widowed).

Table 4. Relative risk ratios of the multinomial logistic regression model (reference group: stably married)

Variables	Men					Women				
	Stably widowed	Divorced	Never married	Cohabiting	Complex trajectories	Stably widowed	Divorced	Never married	Cohabiting	Complex trajectories
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Cohort										
Pre-early industrialist	5.129***	0.231***	0.897	0.044**	0.655	13.826***	0.352**	4.284***	0.072**	1.145
	(1.453)	(0.098)	(0.311)	(0.045)	(0.183)	(1.807)	(0.130)	(1.045)	(0.074)	(0.265)
Early industrialist	5.234***	0.450***	0.626**	0.127***	0.849	7.860***	0.926	2.138***	0.326***	0.858
	(0.998)	(0.053)	(0.097)	(0.029)	(0.088)	(0.707)	(0.089)	(0.318)	(0.065)	(0.089)
Industrialist	1.787**	0.717**	0.824	0.445***	1.049	2.359***	1.200*	1.615**	0.423***	1.135
	(0.364)	(0.075)	(0.122)	(0.073)	(0.103)	(0.222)	(0.100)	(0.237)	(0.071)	(0.104)
Childhood conditions										
People per room	1.094**	0.953	0.987	0.994	1.049	1.006	1.017	0.956	1.122	1.022
	(0.036)	(0.044)	(0.048)	(0.076)	(0.037)	(0.019)	(0.035)	(0.044)	(0.086)	(0.037)
Number of books	0.967	1.062	0.906	0.997	1.141***	0.979	1.073*	1.119*	1.208**	0.999
	(0.051)	(0.045)	(0.056)	(0.073)	(0.041)	(0.027)	(0.036)	(0.058)	(0.081)	(0.036)
Main breadwinner's occupation (ref:farmer)										
High-skilled white collar	0.743	1.471*	0.726	1.002	2.000***	1.216	1.513**	0.722	1.073	2.205***
	(0.176)	(0.262)	(0.185)	(0.306)	(0.307)	(0.144)	(0.215)	(0.156)	(0.279)	(0.349)
High-skilled blue collar	0.832	1.083	0.670	1.083	2.119***	1.121	1.646***	0.762	0.722	2.210***

	(0.201)	(0.223)	(0.188)	(0.342)	(0.344)	(0.140)	(0.245)	(0.173)	(0.230)	(0.377)
Low-skilled white collar	0.803	1.242	0.666*	0.916	1.797***	1.157	1.469**	0.824	0.919	2.231***
	(0.141)	(0.192)	(0.137)	(0.244)	(0.243)	(0.101)	(0.178)	(0.140)	(0.230)	(0.302)
Low-skilled blue collar	1.035	1.275*	0.770	0.995	1.661***	1.099	1.303**	0.823	0.932	1.827***
	(0.115)	(0.150)	(0.103)	(0.190)	(0.180)	(0.066)	(0.126)	(0.106)	(0.184)	(0.200)
No main breadwinner	1.080	1.406	1.991	0.000	1.743	0.980	1.731*	1.218	1.085	1.653
	(0.377)	(0.475)	(0.925)	(0.001)	(0.523)	(0.203)	(0.435)	(0.476)	(0.631)	(0.480)
Absent biological parent	1.174	1.589***	0.814	1.323	1.324*	1.070	1.226	0.994	1.727*	1.594***
	(0.172)	(0.206)	(0.169)	(0.310)	(0.149)	(0.086)	(0.135)	(0.180)	(0.375)	(0.169)
Education (ref:medium)										
Low	1.090	1.043	1.263	1.158	0.967	1.319***	0.970	1.110	0.928	1.040
	(0.128)	(0.115)	(0.182)	(0.217)	(0.094)	(0.085)	(0.083)	(0.145)	(0.180)	(0.095)
High	0.934	0.991	1.106	1.097	1.002	0.809*	1.177	1.189	1.611**	0.911
	(0.131)	(0.113)	(0.185)	(0.214)	(0.095)	(0.078)	(0.113)	(0.188)	(0.298)	(0.096)
Number of childhood illness (ref:none)										
One	0.957	1.128	0.747*	0.665	1.012	0.961	1.195	0.742*	1.632	1.188
	(0.118)	(0.152)	(0.108)	(0.147)	(0.117)	(0.066)	(0.145)	(0.102)	(0.502)	(0.160)
Two	1.101	1.266	0.922	0.838	1.204	0.938	1.505**	0.851	1.967*	1.305

	(0.170)	(0.195)	(0.166)	(0.209)	(0.158)	(0.081)	(0.200)	(0.145)	(0.644)	(0.194)
Three	1.538	1.460	0.782	0.748	1.350	0.943	1.754**	0.958	2.214*	1.425
	(0.348)	(0.314)	(0.237)	(0.281)	(0.250)	(0.135)	(0.303)	(0.237)	(0.861)	(0.278)
Four or more	0.632	1.481	1.386	2.320*	1.831*	1.024	1.886**	1.418	2.080	2.303***
	(0.381)	(0.520)	(0.583)	(0.973)	(0.504)	(0.225)	(0.451)	(0.465)	(1.023)	(0.562)
Number of children (ref: none)										
One	0.770	0.555***	0.023***	0.088***	0.836	0.950	1.051	0.061***	0.225***	0.899
	(0.136)	(0.088)	(0.005)	(0.019)	(0.135)	(0.102)	(0.151)	(0.009)	(0.042)	(0.141)
Two	0.456***	0.368***	0.012***	0.030***	0.496***	0.700***	0.652**	0.018***	0.050***	0.493***
	(0.075)	(0.052)	(0.002)	(0.006)	(0.074)	(0.070)	(0.087)	(0.003)	(0.010)	(0.073)
Three or more	0.482***	0.399***	0.013***	0.025***	1.092	0.822*	0.661**	0.020***	0.045***	0.915
	(0.081)	(0.059)	(0.002)	(0.006)	(0.160)	(0.082)	(0.091)	(0.003)	(0.010)	(0.133)
N	10765	10765	10765	10765	10765	13418	13418	13418	13418	13418

Notes: Results are controlled for country, coefficients not shown.

Exponentiated coefficients; Standard errors in parentheses. Cox-Snell R^2= 0.264 (men); Cox-Snell R^2= 0.292 (women).

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

Table 5. Relative risk ratios of the multinomial logistic regression model (reference group: stably married)

Variables	Men					Women				
	Stably widowed	Divorced	Never married	Cohabiting	Complex trajectories	Stably widowed	Divorced	Never married	Cohabiting	Complex trajectories
	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Childhood illness (ref:none)										
Type one	1.010	1.125	0.865	0.763	1.009	0.984	1.202	0.877	1.788	1.172
	(0.132)	(0.158)	(0.133)	(0.178)	(0.122)	(0.071)	(0.150)	(0.128)	(0.591)	(0.165)
Type two	1.258	1.288	0.985	0.840	1.227	0.991	1.429**	0.977	2.072*	1.403*
	(0.187)	(0.198)	(0.173)	(0.214)	(0.161)	(0.083)	(0.191)	(0.163)	(0.712)	(0.210)
N	10765	10765	10765	10765	10765	13418	13418	13418	13418	13418

Notes: Results are controlled for country, cohort, childhood socioeconomic conditions, number of children, and education;coefficient not shown.
Exponentiated coefficients; Standard errors in parentheses. Cox-Snell R^2= 0.263 (men); Cox-Snell R^2= 0.290 (women).
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure 1. Frequency of partnership trajectories by country for men and women (%)

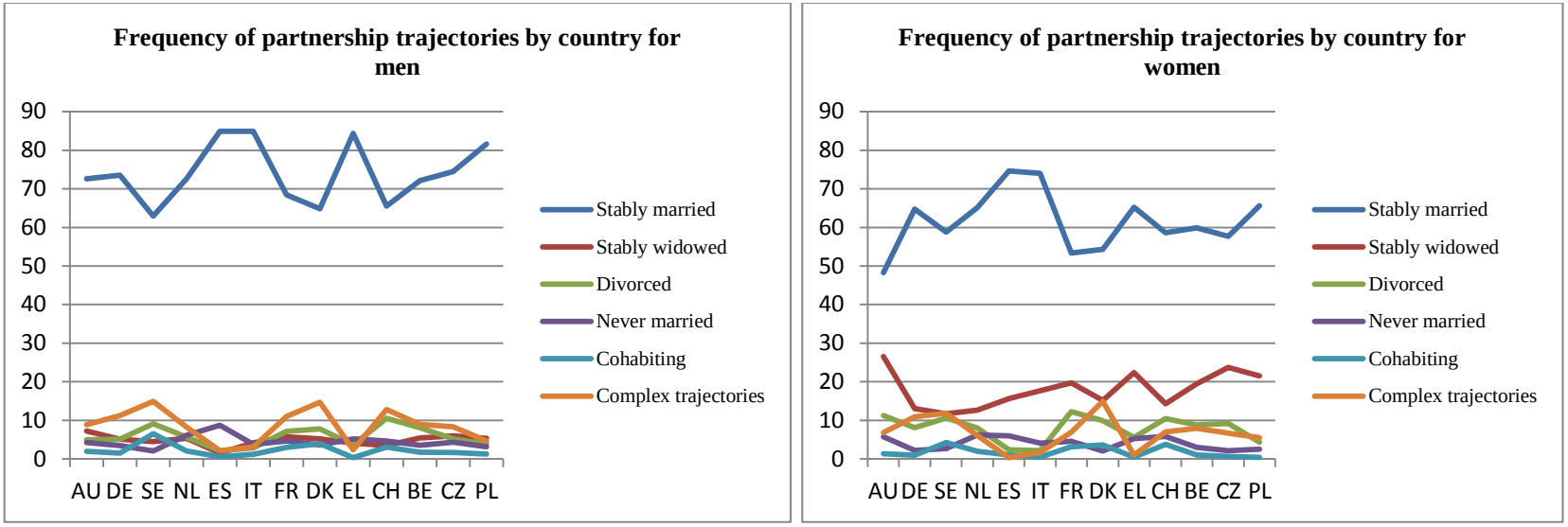


Figure 2. Frequency of partnership trajectories by number for childhood illnesses for men and women (%)

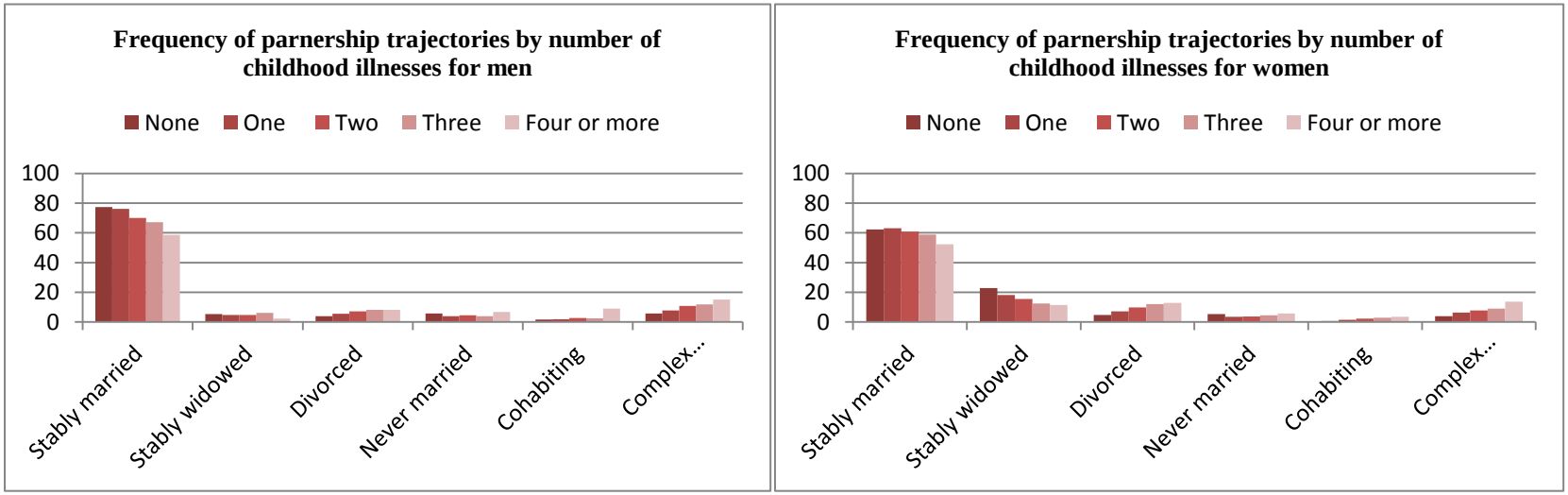


Figure 3. Frequency of partnership trajectories by education for men and women (%)

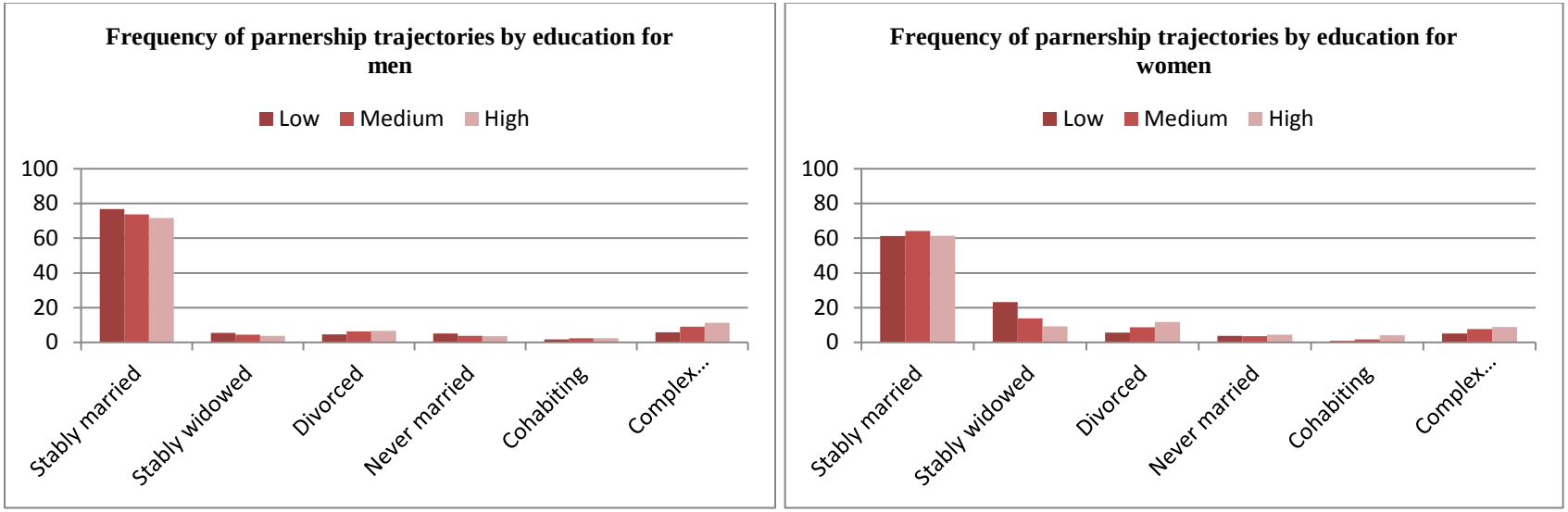
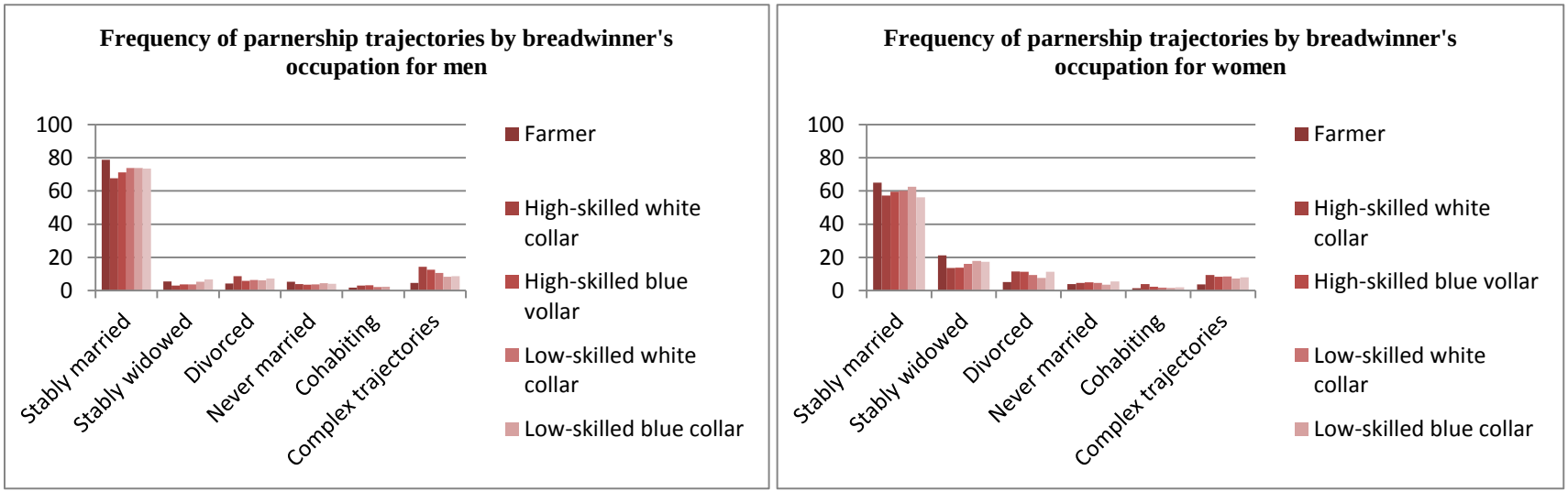


Figure 4. Frequency of partnership trajectories by the family's breadwinner occupation in respondents' childhood for men and women (%)



Appendix

Table 1. Descriptive statistics of the sample used in the regression analysis

	Men		Women		Pooled	
	n	%	n	%	N	%
Dependent variable						
Partnership trajectory						
Stably married	8027	74.57	8309	61.92	16336	67.55
Stably widowed	525	4.88	2457	18.31	2982	12.33
Divorced	611	5.68	1010	7.53	1621	6.70
Never married	491	4.56	547	4.08	1038	4.29
Cohabiting	231	2.15	228	1.7	459	1.90
Complex trajectory	880	8.17	867	6.46	1747	7.22
Independent variables						
Cohort						
Pre-industrialist cohort	278	2.58	502	3.74	780	3.23
Early industrialist cohort	4241	39.40	4925	36.70	9166	37.90
Industrialist cohort	405	37.62	4783	35.65	8833	36.53
Contraceptive revolution cohort	2196	20.40	3208	23.91	5404	22.35
Country						
Austria	303	2.81	437	3.26	740	3.06
Germany	803	7.46	919	6.85	1722	7.12
Sweden	772	7.17	952	7.09	1724	7.13
Netherlands	888	8.25	107	7.97	1958	8.10
Spain	793	7.37	1028	7.66	1821	7.53
Italy	1073	9.97	1278	9.52	2351	9.72
France	943	8.76	1233	9.19	2176	9.00
Denmark	889	8.26	1075	8.01	1964	8.12
Greece	1196	11.11	147	10.96	2666	11.02
Switzerland |	495	4.60	642	4.78	1137	4.70
Belgium	119	11.05	1417	10.56	2607	10.78
Czech Republic	722	6.71	986	7.35	1708	7.06
Poland	698	6.48	911	6.79	1609	6.65
Education						
Low	4679	43.46	7136	53.18	11815	48.86
Medium	3668	34.07	4107	30.61	7775	32.15
High	2418	22.46	2175	16.21	4593	18.99
Childhood conditions						
Breadwinner's occupation						

Farmer	3024	28.09	3734	27.83	6758	27.95
High-skilled white collar	874	8.12	1064	7.93	1938	8.01
High-skilled blue collar	632	5.87	793	5.91	1425	5.89
Low-skilled white collar	1384	12.86	1792	13.36	3176	13.13
Low-skilled blue collar	4685	43.52	5817	43.35	10502	43.43
No main breadwinner	166	1.54	218	1.62	384	1.59
Biological parent absent	1142	10.61	1437	10.71	2579	10.66
Childhood illness						
None	1727	16.04	1687	12.57	3414	14.12
Less severe	6472	60.12	8532	63.59	15004	62.04
Severe	2566	23.84	3199	23.84	5765	23.84
Number of children						
No children	1196	11.11	1324	9.87	252	10.42
One	1663	15.45	2218	16.53	3881	16.05
Two	4432	41.17	5432	40.48	9864	40.79
Three or more	3474	32.27	4444	33.12	7918	32.74
People per room	1.93	1.38	1.96	1.38	1.94	1.38
Number of bookshelves	2.04	1.2	2.08	1.20	2.06	1.20
Total	10765	100	100	13418	24183	100

Notes: SHARELIFE release 1.0.0. and SHARE release 2.5.0. Own calculations (N = 24183).
For continuous variables means and standard deviations reported.

Table 3. Partnership trajectories classification

Stably married	%	Stably widowed	%	Divorced	%	Never married	%	Cohabiting	%	Complex trajectories	%
M	0,07	M-W	0,07	D	0,003	S	4,29	S-C	1,9	M-D-M	0.003
C-M	0,01	S-C-M-W	0,05	M-D	0,003					M-S-D-M	0.03
S-C-M	1,22	S-M-W	12,19	C-M-D	0,003					S-C-M-C-D-M	0.07
S-M	66,24	W	0,003	M-S-D	0,003					S-C-M-D-M	0.03
				S-C-D	0,01					S-C-M-W-M	0.08
				S-C-M-D	0,14					S-M-C-D-M	0.02
				S-M-C-D	0,13					S-M-D-M	2.85
				S-M-D	3,31					S-M-S-C-D-M	0.05
				S-M-S-C	0,86					S-M-S-C-M-D-M	0.03
				S-M-S-C-D	0,11					S-M-S-D-M	0.02
				S-M-S-D	2,11					S-M-W-M	1.32
										M-D-M-D	0.27
										S-C-D-M-D-M-D-M	0.03
										S-C-M-C-D-M-D	1.05
										S-C-M-C-D-M-D-M	0.03
										S-C-M-C-D-M-D-M-W	0.003
										S-C-M-M-D-M-D	0.003
										S-C-M-D-M-D-M	0.02
										S-M-C-M-D-M-D	0.003
										S-M-D-M-D	0.003
										S-M-D-M-D-M	0.01
										S-M-D-M-D-M-D	0.01
										S-M-D-M-D-M-D-M	0.003
										S-M-D-M-D-M-D-M-D	0.53
										S-M-D-M-D-M-W	0.20
										S-M-D-M-D-W-M	0.04
										S-M-D-M-W-M-D	0.003

						S-M-D-M-W-M-D-M	0.003
						S-M-S-D-M-D	0.01
						S-M-S-D-M-D-M	0.003
						S-M-S-D-M-D-M-D	0.003
						S-M-S-D-M-D-M-D-M-D	0.003
						SM-S-D-M-D-M-W	0.003
						SM-S-D-M-D-M-W-M	0.01
						C-M-C-D-M	0.25
						S-C-M-W-M-D	0.12
						S-D-M-D-M-W	0.02
						S-M-D-M-W	0.00
						S-M-D-M-W-M	0.01
						S-M-W-M-D	0.003
						S-M-W-M-D-M	0.003
						S-M-W-M-W	0.003
Total	67.55	12.33	6.70	4.29	1.90		7.22

Notes: SHARELIFE release 1.0.0. Own calculations (N = 24183).

Sequences are showed as abbreviated: S (single), C (cohabiting), M (married), D (divorced), and W (widowed).

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