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# Diversity in family life course patterns and intra-cohort wealth disparities in late working age

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## Abstract

Against the backdrop of soaring wealth inequalities in older age, this research addresses the relationship between increasingly diverse family life courses and widening wealth differences between individuals as they age. We holistically examined how childbearing *and* marital histories matter for West German baby boomer cohorts' personal wealth at ages 51 to 59. We proposed that wealth penalties associated with departures from culturally and institutionally supported family patterns accumulate overtime and can explain wealth inequalities at older ages. We tested our thesis using longitudinal data from the German Socio-Economic Panel Study (SOEP, v34, waves 2002-2017). We first identified typical family trajectory patterns between ages 16 and 50 using multichannel sequence analysis and cluster analysis. We then modeled personal wealth ranks at ages 51 to 59 as a function of family patterns. Results showed that departures from a standard family pattern consisting of a stable marriage with (on average, two) children was associated with lower wealth ranks at older age. We also found higher wealth penalties for greater deviation and lower penalties for moderate deviation from the standard family pattern. Addressing entire family trajectories, our research extended and nuanced our knowledge of the role of earlier family behavior for later economic wellbeing. By using personal-level wealth data instead of household-level data, we were able to identify substantial gender differences in the study associations. Our research also recognizes the importance of combining marital *and* childbearing histories to assess the relationship between family life courses and wealth inequality.

## Keywords:

# 1. Introduction

In light of an aging population and its increasing pressure on the welfare system, countries with generous public pension systems such as Germany have moved towards more market-based solutions to ensure economic wellbeing in old age (Ebbinghaus, 2015). Personal savings and other private sources of wealth are thus increasingly relevant to the future living standards of the contemporary workforce. However, individuals differ markedly in the rate at which they accumulate wealth over their working lives, which is reflected in recent trends of soaring wealth inequalities in older age in most wealthy nations (OECD, 2013). In the longer term, widening wealth disparities at older ages will increase reliance on welfare, hinder social cohesion, and contribute to rising economic inequality through the unequal intergenerational transmission of resources and opportunities (Pfeffer & Killewald, 2017; Pfeffer & Schoeni, 2016).

When examining potential sources of wealth inequalities, research and policy has commonly focused on the role of labor market position and social background (e.g., Bernardi, Boertien, & Geven, 2018; Ponomarenko, 2017). Only recently have family roles—and transitions across these roles—over the life course been recognized as relevant to socio-economic stratification and wealth inequality (e.g., Halpern-Manners, Warren, Raymo, & Nicholson, 2015; Hurd, 2002; McLanahan & Percheski, 2008; Zissimopoulos, Karney, & Rauer, 2015). Studies along these lines have argued that the pervasive changes in the family realm over recent decades—including declines in and postponement of marriage and childbearing, and the emergence of new family arrangements such as unmarried couples with children, lone parents or step- and blended families—have exacerbated socio-economic disadvantages.

The new diversity in contemporary family life courses is often deemed economically inferior or less favorable than a standard post-WWII family life course featuring a stable marriage with (on average, two) children. On one hand, cultural and institutional support for the standard family pattern have meant that substantial economic benefits are associated with its long-term enactment, while departures were often sanctioned (Lersch, 2017). One the other hand, economic prerequisites for marriage and family formation have led to stratified access to the standard family pattern that often exclude disadvantaged individuals and social groups who perceive these prerequisites as unachievable (Gibson-Davis, Edin, & McLanahan, 2005). Either way, the increasing diversity in family roles and divergence from the standard family trajectory is found to broaden individual differentials in wealth accumulation and can contribute to

growing wealth inequality at older ages. Whether and how the latter occurs, however, remains an empirical question.

To close these gaps in our knowledge, the present study examines the salience of increasingly diverse family trajectories in early and mid-adulthood for wealth disparities at older ages amongst the West German baby boomer cohort. We establish the *diversity* in family trajectories for this birth cohort and assess the extent to which overall *departures* from a *standard* family pathway are associated with lower wealth at older ages, as a potential result of breaking with the associated mechanisms of wealth accumulation. We additionally assess what *type of trajectory patterns* matters and can further help to explain disparities in wealth accumulation at older ages. We consider the extent to which all these associations vary by gender, as wealth accumulation potentials have been shown to differ between men and women (Bessière, 2019; Sierminska, Frick, & Grabka, 2010). West Germany provides an interesting case as it has been characterized by persistent cultural and institutional support for traditional family arrangements featuring stable marriage and a male breadwinner, despite pervasive changes in the societal roles and personal endowments of women, as well as in partnership and fertility behaviors (Trappe, Pollmann-Schult, & Schmitt, 2015).

The present study extends existing research in three important ways. First, we adopt a holistic life course approach to assess life courses as long-term trajectories. Previous research relied on blunt summary indicators of past point-in-time family outcomes (e.g. being ever divorced, currently married, divorced twice) to classify entire family life courses, which has obscured the diversity in pathways leading to similar family outcomes but different economic wellbeing in older age (Halpern-Manners et al., 2015). Our approach enables us to explicitly acknowledge that an aggregate of time-dependent processes featuring the occurrences, timings and ordering of family transitions shapes the life-long accumulation of economic resources and thus contributes to intra-cohort wealth inequality.

Second, we examine marital *and* fertility histories simultaneously, which acknowledges increasingly complex interdependencies between marital and fertility choices over the life course. Previous research has almost exclusively focused on marital status, although both fertility and marital histories can be expected to be closely intertwined with wealth accumulation processes across the life course.

Third, while most research on the role of family dynamics for economic wellbeing inspected household-level wealth we examine the personal wealth of household members as an under-researched dimension of economic wellbeing that may provide additional evidence of

potentially gendered effects. We define personal net wealth as personally owned assets—solely owned or the personal share of joint assets—minus personal liabilities. We therefore acknowledge research that has questioned the unitary household model and the idea that all resources are fully shared and pooled amongst household members. Although joint money management has been shown to be particularly likely within traditional stable marriages with children, previous research has highlighted substantial within-couple wealth inequalities and particularly individualized money management approaches in more complex families, for example, following remarriage (Amuedo-Dorantes, Bonke, & Grossbard, 2011; Burgoyne & Morison, 1997; Grabka, Marcus, & Sierminska, 2015).

Empirically, we deploy longitudinal data from the West German sample of the German Socio-Economic Panel Study (SOEP, v34, waves 2002-2017). To identify typical family trajectory patterns, we use multichannel sequence analysis and cluster analysis of childbearing and marital histories spanning ages 16 through 50. To this end, we use retrospective life history information for men and women born between 1943 and 1966 who were aged 50 to 59 between 2002 and 2017. Using the identified set of family patterns, we predict disparities in personal wealth ranks at pre-retirement age (measured at ages 51 to 59) using OLS regression (N=6,400).

## 2. Previous research

Incipient previous research on disparities in *household-level* wealth by marital status unequivocally finds that, compared to ever experiencing a divorce, a continuous marriage is associated with higher wealth levels between ages 51 and 61 (Ulker, 2008; Wilmoth & Koso, 2002; Zissimopoulos et al., 2015).[1] While being remarried at older ages was found to have partially restored household wealth compared to respondents who stayed divorced until old age, serial union dissolution severely penalized wealth in old age (Ulker, 2008; Wilmoth & Koso, 2002; Zissimopoulos et al., 2015).

By focusing solely on household-level wealth, previous studies may have underestimated gender inequalities within and between different family types as they assumed that all household resources are shared equally. Grabka et al. (2015), however, illustrate substantial within-couple wealth inequalities that question the approach of previous research. Novel research by Lersch (2017) examines German panel data to scrutinize personal-level and

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[1] As widowhood is a rather uncommon event prior to retirement and thus also an uncommon occurrence in our cohort of interest (Statistisches Bundesamt, 2018), we focus on divorce as the reason for marital dissolution in the literature review.

household-level wealth differences across currently married, remarried and divorced respondents between ages 51 and 75. Results show that while continuously married respondents have the highest personal and per capita wealth, men benefit more from continuous marriage than women with regards to their personal wealth levels at older ages. Although gender differences are statistically non-significant for remarried respondents, coefficients indicate that men may benefit slightly more from remarriage than women, compared to never married men and women. Across all wealth measures, Lersch (2017) finds that currently divorced respondents have the lowest levels of wealth in older age. Being divorced at older ages was thereby associated with marginally lower wealth for women than men.

The presence and number of dependent children is closely interlinked with parents' marital status, but such intersections across family domains have only been partially addressed in wealth research by Ulker (2008). For the US, he finds that unmarried women's, and married men's and women's per capita wealth at older age was negatively associated with the number of living children they had, while the number of living children did not have a substantial effect on unmarried men's per capita wealth. Despite addressing key intersections between fertility and marital status, the fact that these family statuses were measured in older age ignores the heterogeneous pathways that lead to the same marital status and final descent. Being unmarried at older ages may reflect a diverse range of marital histories from lifelong singlehood to highly disrupted marital patterns. Similarly, in this research, it was unclear whether married couples were in a first-time or higher order marriage.

The analysis of intersections between fertility and marital histories (which consist of all previous transitions between family statuses) is critical to our understanding of the association between family life courses and wealth at older ages. This claim is supported by previous research that has illustrated that relevant variation in household-level wealth exists across a range of marital status and fertility transitions during early and mid-adulthood (e.g., Lersch, Jacob, & Hank, 2017; Lusardi, Cossa, & Krupka, 2001). Whether these early wealth inequalities widen or narrow over time as children get older and form independent households is, however, unclear.

## 3. Theoretical framework

In line with arguments about the origin and development of intra-cohort inequalities (Dannefer, 2003), disparities in wealth at older ages can be understood as an outcome of age differentiation: for a given birth cohort, the capacities and resources that contribute to the accumulation of

wealth progressively differ among individuals as they age. According to the life course approach (Mayer, 2004), the rate of differentiation can be explained by (1) transitions, roles and experiences in multiple life domains (e.g., employment, family, etc.), (2) the linked experiences of others (e.g., contact with and support from family), and (3) the opportunities and constrains embedded in the socio-historical contexts of individuals' lives.

Along these lines, the current paper explores how marital and parental roles enacted over the life course matter for the older-age wealth inequalities of a West German baby boomer birth cohort. In our study context, a nuclear family arrangement (i.e., husband and wife and their biological children) was demographically dominant at mid-adulthood, and was considered an economically-enhancing and socially-idealized family setting (Trappe et al., 2015). The absence of such a family arrangement throughout or over a large span of an individual's life course was deemed less beneficial or even a hindrance to the achievement of subjective and objective wellbeing including financial prosperity. To confirm whether and how this is true, we theorize and empirically assess the accumulation of wealth-beneficial or wealth-penalizing structuring opportunities relating to marital and parental roles and transitions from early adulthood until pre-retirement age.

## 3.1. Wealth benefits and penalties associated with family states and transitions

A stable first marriage has been associated with a range of wealth-enhancing mechanisms commonly denoted the marriage wealth premium (Lersch, 2017). The premium is shaped, firstly, by greater economies of scale and institutional benefits (i.e., tax, pension, or insurance benefits) that enable higher saving rates. Secondly, social norms around marriage explicitly emphasize saving for a joint future, highlighting long-term commitment and increasing intergenerational transfers. High levels of commitment and perceived longevity of the marital institution additionally provide an environment in which sharing and resource integration are perceived as low risk. This increases the likelihood of investing in assets that may provide higher returns in the long-term and over time compounded interest effects may exponentially increase wealth as a form of cumulative advantage.

Departure from a stable marriage either through marital dissolution or refraining from marriage would result in a partial or full loss or lack of marital premiums. It is also worth noting that marital dissolution is often associated with substantial immediate wealth losses due to the costs of separation and divorce, including expenses for the administrative process itself,

possible relocation, and the division of marital wealth. While marital premiums may be restored during an eventual remarriage, such premiums are expected to be lower due to the greater financial independence of individuals in higher order marriages and potential financial commitments to ex-spouses (Burgoyne & Morison, 1997). In addition, marriage entries and exits are socially stratified and vary across wealth levels and relevant characteristics including labor market income, employment status, education or families' socio-economic origins (Eads & Tach, 2016; Gibson-Davis et al., 2005; Schneider, 2011).

Parenthood is associated with a range of direct and indirect costs, and the responsibility to cover them largely rests on parents, which can limit their potential to accumulate wealth. Direct costs relate to expenses for daily living (e.g. food, rent), and fees for child care and education (Bradbury, 2011). Indirect financial costs of childrearing particularly emerge for women due to related career breaks (Budig & England, 2001), which restrict women's current and future income and thus wealth accumulation potential (Lersch et al., 2017). The latter follows from a culturally-persistent and institutionally-supported male breadwinner model, where men are meant to provide economic resources for the household while women are the main caregivers.

For an average family size, direct childbearing costs can be offset, to a large extent, in the context of a stable parental marriage. First, married parents often fulfil some economic prerequisites for childbearing, particularly fathers. To provide financial security for mother and child while also ensuring an ideal setting for child socialization, it was commonly thought that childbirth ought to take place within marriage and preferably only after men achieved a consolidated position in the labor market (Oppenheimer, 1988). Second, actual or anticipated childbearing generates long-term savings incentives to cover child-related costs, which continue even after children are no longer dependent on parents (Lusardi et al., 2001). Third, married parents often benefit from intergenerational financial transfers as a form of social support (Leopold & Schneider, 2011), which can additionally increase wealth levels.[2]

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[2] Child-related costs can outweigh benefits if the number of children exceeds a financially manageable threshold for a particular household. To fully understand the child-related economic costs, it is relevant to additionally consider fertility levels alongside marital status. Manageable thresholds can be expected to be rather low for single parents as child-related direct and indirect costs are not fully covered jointly by both parents. In contrast, thresholds are higher for married parents due to the associated benefits of marriage.

In our study context, marriage was the normative family environment for childbearing[3] (Le Goff, 2002), and desire for children influenced marital transitions and their timing (Baizán, Aassve, & Billari, 2004). In contrast, due to the social stigma of out-of-wedlock parenthood, long-term cohabitation of parents was uncommon and often ended either in marriage or single parenthood (Le Goff, 2002). The likelihood of either pathway is socially stratified, with economically more advantaged parents transitioning to marriage, and younger parents with an incomplete education and lower income separating (Upchurch, Lillard, & Panis, 2002). Among married parents, divorce is also more likely among financially stressed individuals, which results in a large decline in wealth after divorce. Overall, single parents—either due to divorce or to out-of-wedlock births—lack or lose the economic advantages of marriage, including financial transfers between parents (Eickmeyer, Manning, & Brown, 2019) and across generations (Manning, Stewart, & Smock, 2003). As children commonly reside with mothers, single parenthood often restricts women's economic potential as they bear a larger share of the direct child costs and they incur indirect costs of employment restrictions related to taking care of children. Child alimony paid by the non-residential fathers is relatively low and does not affect poverty risks for fathers (Hakovirta, Meyer, & Skinner, 2019). Nevertheless, regular child alimony payments may have the potential to reduce surplus income and thus savings for men.

## 3.2.    The accumulation of advantage and disadvantage

Consistent with the *cumulative advantage/disadvantage theory* (O'Rand, 1996), we extend the above-mentioned arguments about wealth-advantageous and wealth-penalizing family states and transitions to explain differential wealth outcomes in older age. We argue that wealth disparities between individuals at older ages can be a function of individuals' wealth advantages and penalties, accumulated through their family behavior at younger ages. In particular, departure from the culturally and institutionally supported *standard* trajectory of continuous marriage combined with moderate fertility may lead to lower rates of wealth accumulation and to increasing wealth disparities because wealth-enhancing mechanisms are either disrupted or absent. With regards to our empirical analysis, we expect that *having enacted a standard family trajectory is associated with greater wealth at ages 51 to 59, while having departed from the*

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[3] Although the social acceptance of childbirth within cohabitation has increased, for the cohorts of interest in this study and the social context of West Germany, cohabitation was commonly seen as an undesirable family form for childbearing. Thus, transitions to parenthood commonly took place within marriage (Le Goff, 2002).

*standard family trajectory can be expected to be linked to less wealth-enhancing structures and thus lower wealth at these ages.*

Non-standard family trajectories are, however, diverse and heterogeneous with regards to the type of departure from the standard trajectory. Some trajectories might only deviate slightly from the standard trajectory, regarding the occurrence, timing or sequencing of family transitions that conform to the standard. This may be, for example, due to the postponement of marriage or the decision to have one child less than the average. One can expect small to trivial wealth disparities when trajectories depart only moderately from the standard, because most wealth enhancement mechanisms will still be in place and only small, if any, wealth penalties will be incurred. Some other trajectories might feature substantial deviations, ranging from the complete absence of family transitions to a highly complex set of transitions that often include non-typical, disadvantaged family arrangements such as single parenthood and patchwork families. One can expect larger wealth disparities when trajectories depart substantially from the standard, because wealth-enhancing mechanisms associated with the enactment of the standard trajectory are absent or disrupted and additional wealth penalties will be incurred and may accumulate, depending on the complexity of family transitions (e.g., repeated divorce, childbearing with multiple partners). We thus expect that *wealth levels will vary substantially between groups of non-standard family trajectories with larger deviations from the standard pathway associated with higher wealth penalties and smaller deviations associated with substantially lower wealth penalties*.

Due to the hegemonic position of marriage within the baby boomer cohort, we expect life courses that are characterized by the departure from or absence of a continuous marriage to be highly deviating life courses. Despite the disruption of a prior marriage, life courses that feature stable remarriage may be seen as an attempt to re-establish the traditional pathway. Even within life courses featuring stable marriage, deviation may increase, for instance, with an increasing number of children or with childlessness. As we empirically derive major family patterns in our study context (see section 4 on methods), we refrain from proposing elaborate hypotheses on specific family pathways and their association with wealth at ages 51 to 59 at this stage.

Finally, wealth accumulation potentials likely differ for men and women over their life courses. Gender wage inequalities and access to employment-related wealth building tools are cited as the main drivers of these disparities (Sierminska et al., 2010). While penalties partially emerge based on occupational segregation and an undervaluing of female-dominated industries

(Hakim, 1992; Perales, 2013), family roles enacted over the life course also matter. Women's wealth accumulation potential is substantially inhibited by parenthood-related career breaks (Lersch et al., 2017). The degree to which these potential disadvantages develop into lasting penalties likely differs according to the availability and consistency of their partner's (financial) support.

## 4. Method

### 4.1. Data

We use longitudinal survey data from the German Socio-Economic Panel study (SOEP, version 34; doi: 10.5684/soep.v34). The SOEP is a nationally representative household panel study that has been administered yearly since 1984 in West Germany and has since been extended several times (Goebel et al., 2019). The data are particularly suitable for our research purposes as they (i) contain retrospective information on detailed marital and childbearing histories from late teen ages to date, and (ii) collect comprehensive *personal*-level wealth data in four survey waves (2002, 2007, 2012 and 2017).[4] In our analyses, we rely on wealth data that were edited and imputed by the SOEP survey team (Grabka & Westermeier, 2015). Building on the imputed wealth data, we additionally address item nonresponse in relevant analytical variables—except for marital and fertility history data[5]—through multiple imputation using Stata's *mi* procedure (version 16). Estimation results from five imputed data sets are combined using Rubin's rule (Rubin, 1987).

### 4.2. Sample

In a first step, we restrict the sample to respondents who were aged 50 to 59 between 2002 and 2017 and who provided complete retrospective marital and fertility histories from ages 16 to 50. We decided to focus on respondents in their 50s as wealth penalties and advantages accumulate over the life course and are thus particularly visible at older age (Hurd, 2002). Further, wealth levels can be expected to peak at this time in preparation for retirement (Spilerman, 2000). As wealth accumulation slows down during retirement and wealth may be consumed, we restrict the inclusion of retirees by focusing on respondents up to the age of 59.

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[4] The supplementary material provides a brief description of the measurement of retrospective marital and childbearing information as well as the measurement of personal-level wealth.

[5] While sequence data are not imputed, family cluster membership is used as an auxiliary variable in the imputation process. Table A.1. in the supplementary material provides an overview of variables used in the imputation processes and provides information on the number and share of missing data.

Although the legal retirement age for the cohort of interest is 65 to 67, actual retirement entry often occurs earlier (Deutsche Rentenversicherung Bund, 2018). Based on these criteria, our sample contains 10,057 respondents with 5,751 women and 4,306 men. As men's retrospective fertility data has only been collected for men who entered the SOEP in 2000 or later, our sample includes fewer men than women.[6] Overall, this sample is, however, largely representative of German baby boomer birth cohorts born between 1943 and 1966 and is used to assess the diversity of family life courses.

For the multivariate analyses we further restrict the sample to respondents aged 51 to 59 in any of the wealth survey years 2002, 2007, 2012 and 2017. This excludes 2,812 respondents (1,336 men and 1,476 women). We also exclude observations of years with missing personal interviews. This leads to the complete-case exclusion of 299 men and 335 women. Finally, observations for respondents in years without a wealth questionnaire are excluded.[7] Thus, an additional 93 men and 118 women are excluded. After these exclusions, our final regression sample consists of 6,400 respondents with 8,320 individual-year observation: 2,578 men with 3,292 individual-year observations and 3,822 women with 5,028 individual-year observations.

## 4.3. Measurements

**Wealth measures**

Our outcome measure, *total personal net wealth,* is defined as the sum of all personally owned assets including the personal share of jointly owned assets. Asset components in the SOEP include property assets, tangible and financial assets, private pensions, business assets and collectables.[8] We subtract personal loans and debts from the amount of personally owned assets. Net wealth may thus also be negative. Personal net wealth is adjusted for inflation using the consumer price index set to 2015 prices. As wealth data is highly right-skewed we follow suggestions by Killewald, Pfeffer, and Schachner (2017). First, we top-and-bottom code the extreme 0.1% of reported wealth values. Second, we transform total personal net wealth by ranking individuals by their personal net wealth separately for each wealth survey year but jointly by gender. The final rank measure provides a straightforward indication of individuals'

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[6] For men who entered the panel before 2000, fertility histories have been reconstructed using men's female partners' histories. We re-ran our sequence analysis and cluster analysis including that information. While the emerging family patterns are consistent with our main analysis, we argue that fertility cluster membership cannot properly be determined, particularly for non-stably partnered men.
[7] This applies to SOEP refreshment samples that did not administer a wealth questionnaire in all years.
[8] Due to the redistributive nature of Germany's mandatory state pension system, state pension entitlements are not included.

positions within the wealth distribution. Ranging from 0 to 1, the rank measure indicates the proportion of respondents that have less wealth than the individual considered.

As previous research has almost exclusively relied on household-level wealth data in the analysis of wealth at older ages, we re-run our analyses using total per capita net wealth. To generate this measure, we use household-level wealth data, which in the SOEP is personal-level wealth aggregated to the household. We divide household-level wealth by the number of adults living in the household to obtain the per capita measure. Results of this supplementary analysis are provided in Figure A.1. and A.2. in the supplementary material. Although the general directions of the association of interest are in line with our main results, due to the nature of the measure and the neglect of within-couple wealth differences, gender differences are substantially reduced for the per capita measure.

**Family trajectory patterns**

Our main explanatory variable is a categorical measurement of major family life course trajectories. We define the family trajectory as a sequence or succession of family states over time and build a typology of family trajectories deploying sequence analysis (see analytical strategy, below).

To compile respondents' family sequences, we use biographical information on respondents' marital status and childbearing status between ages 16 and 50. This information was collected prospectively and retrospectively for life periods pre-dating panel entry. We build one sequence of yearly marital states and one sequence of yearly childbearing states per respondent. The marital sequence captures four relevant partnership situations: "Single, never married", "Married", "Previously married", and "Remarried". The "Single, never married" state includes episodes of pre-marital singlehood as well as of pre-marital cohabitation. The "Married" state refers to the first marital episode. "Remarried" refers to higher-order marital episodes, though most of them are second order. "Previously married" consists mostly of separated—from a marriage—or divorced individuals[9], who might be living in a single-headed household or cohabiting with a partner. Despite the increasing focus on non-marital cohabitation in recent studies, this information is not available retrospectively in the SOEP. Additionally, long-term cohabitation only gained acceptance in more recent cohorts than those

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[9] Less than two percent of respondents in this group are widows or widowers.

included in the study and was commonly not recorded in West Germany due to its negligible role in the life courses of the cohorts of interest (Le Goff, 2002).

The childbearing sequence consists of five categories capturing number of children: "Childless", "1 child", "2 children", "3 children", and "4+ children". Each category indicates the reported number of the respondents' ever born or adopted children at a given age. Since no information on household composition is available in the biographical questionnaire, states in the childbearing sequence do not consider whether or for how long children lived in the household. Despite this, the childbearing sequence is illustrative of whether individuals followed a normative sequence regarding the quantum and tempo of childbearing.

**Other measures**

A range of baseline confounders are included as control variables in the regression analyses, as they partially predict both selection into certain family pathways and base-level wealth. These include: a dummy for migration background to indicate whether respondents or their parents had immigrated to Germany; a categorical measure of the number of siblings (none (ref.), 1 sibling, 2 siblings, 3 or more siblings); a continuous measure of parents' occupational status defined by the Standard International Occupational Prestige Scale (SIOPS); and a categorical measure of parents' highest education level (low (ref.), intermediate, high). Additionally, the regression models control for respondents' ages as a continuous measure to capture maturation effects and account for age related wealth differences within our sample; respondents' birth cohorts (1943-1950 (ref.), 1951-1958, 1959-1966) to consider cohort effects; and marital status changes between ages 50 and 59 (depending on age at last observation) by including three dummy variables that capture the entry into marriage, or marital dissolution either through separation and divorce or through widowhood.

While the present paper does not aim to explain the specific mechanisms of wealth accumulation associated with different family trajectories, we partially address the resource accumulation potential of major family trajectories within our descriptive analyses. For this, we use the following human capital trajectory measures separately for men and women: respondents' highest level of education (low, intermediate, high), number of years of employment, number of unemployment episodes, and the mode of the Standard International Occupational Prestige Scale (SIOPS) score.

## 4.4.    Analytical Strategy

To address our hypotheses, we first use methods for the analysis of sequence data to establish major family life course patterns. Next, we deploy regression analyses to assess the association between the diversity in family patterns and wealth ranks in later life.

To establish the relevant diversity in family life courses, we use multi-channel sequence analysis (MCSA) (Gauthier, Widmer, Bucher, & Notredame, 2010) in the *TraMineR* package (Gabadinho, Ritschard, Studer, & Müller, 2008) of the software R (version 3.3.3) using the above-mentioned state sequences for the marital and childbearing trajectories as the units of analysis. Using an Optimal Matching (OM) algorithm[10] an empirical cost structure was established to calculate pairwise distances based on transition rates across states, where same state transitions occurring at about the same time equal smaller distances between two sequences. This cost structure is consistent with theoretical ideas of de-standardization of family life courses based on departures in the type and timing of family transitions from the standard sequence.

Building on the distance matrix resulting from the MCSA, we identify the specific family patterns that are relevant in the population to address the significance of the standard trajectory, and to identify consistent patterns that deviate from each other and assess the specific aspects of deviance. To this end, we employ cluster analysis on the matrix of pairwise distances to cluster sequences in groups and generate a typology. We use a Ward link to generate internally consistent and fairly equally sized cluster types. The decision on the number of cluster types is based on empirical fit measures using cluster stopping rules (see Figure A.3. in the supplementary material for a visualization of cluster cut-off criteria).

Prior to our regression analyses, we assess key differences across major family patterns regarding family transitions and socio-economic compositions within a descriptive analysis. We additionally provide untransformed mean personal wealth levels across cluster types as a first indication of our association of interest. We then formally predict the association between specific family life course patterns and wealth ranks using gender-specific OLS regressions with cluster-robust standard errors. As previously mentioned, we use imputed data, and thus estimation results from five imputed data sets are combined using Rubin's rule (Rubin, 1987).

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[10] We note that results do not vary substantively using alternative algorithms (e.g. constant cost of substitution equal to 2, and a cost of insertion and deletion equal to half of the cost of substitution, which renders shorter distances across sequences with similar occurrence and ordering of events).

All estimates are adjusted for the above-mentioned control variables. Regression analysis was performed using the statistical software Stata (version 16).

## 5. Results

### 5.1. Diversity in family trajectories

We describe the diverse family trajectories of German baby-boomer cohorts by clustering individual sequences in major family life course pathways. Eleven major family pathways were supported by multiple cluster cut-off criteria (see Figure A.3. and Table A.2. in the supplementary material). The 11-cluster solution reflects the substantial diversity of family life courses. Figure 1 provides a visual illustration of these pathways.[11] Pathways were ordered based on expected divergence from the standard family life course, starting with patterns that feature stable marriage and descending to patterns that feature marital instability or lack of marriage. We additionally sorted by the similarity of fertility behaviour to the standard trajectory. To provide a thorough understanding of these eleven major pathways, along with the description of the sequence structure of family events, we assess their average socio-demographic and occupational compositions (see Table 1).

The *Standard* pattern (reference pathway; 26.5 percent of the sample) consists of long, uninterrupted marriage trajectories with two children. On average, marriage entry occurred at age 25.2 and was closely followed by first childbirth at age 25.9. The *Standard* pattern further features the traditional male breadwinner model: men in this pattern show substantially higher human capital and occupational achievements than women.


[FIGURE 1 HERE]


Five other family patterns are largely characterised by stable marriage, but they depart from the standard pattern of fertility levels and timing of marriage and fertility. In combination, these patterns garner almost half of the respondents' sample (47.7%). The *Late standard* pattern

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[11] For the visualization we used relative frequency sequence plots (Fasang & Liao, 2014) and display one hundred (medoid) sequences sorted by the similarity of each cluster, which are representative of about every 3 to 7 sample sequences (right plot in the figures). To visually assess homogeneity across sequences in different regions of the cluster, the distance of the represented sequences to the representative (or medoid) sequence is also presented (left plot in the cluster); the larger the distance, the higher the heterogeneity across sequences.

(10.5%) features relatively late marriage entry and first birth (age 33.4 and 34.3, respectively). In line with the increasing postponement of family formation over the decades, this pattern is particularly common amongst younger cohorts. It also features high proportions of men and of respondents with the highest level of education and occupational prestige across patterns. Next, two patterns diverge slightly from the standard pattern's fertility behaviour: *Low fertility marriage* (12.9%) and *High fertility marriage* (10.7%). It is worth noting that marriage entry and first birth take place earlier in the latter pattern (with three children), compared to the former pattern (with one child). While the human capital achievement for men in the two groups are comparable, the three-child pattern features substantially lower human capital attainments for women than the one-child pattern. Last, two patterns present fertility behaviour that contrasts with the standard pattern: the *Childless marriage* (7.3%) and the *Very high fertility marriage* (6.2%). Beyond no fertility, respondents within the *Childless marriage* pathway are also characterized by late marriage (age 27.8) and high levels of human capital for both men and women. The latter high fertility pattern consists of trajectories with four or more children, and children often born out-of-wedlock. This pattern is common amongst respondents with a migration background and those from larger families themselves. It is also associated with below-average human capital for women and men, despite largely uninterrupted careers for the latter. Overall, all continuously married patterns—except the patterns with three or more children—display above-average personal wealth levels.

The next three patterns (11.6%) feature marital instability and therefore discontinuity of marital premiums over the life course: *Remarriage* (2.6%), *Early instability with low fertility* (4.1%) and *Late instability with moderate fertility* (4.9%). Early marriage, early childbearing and out-of-wedlock childbearing are common in all of them. The *Remarriage* pattern additionally features high levels of multi-partner fertility. The other two patterns differ in the timing of marital dissolution, but generally feature lower levels of remarriage. The *Early instability with low fertility* pattern is characterized by a shorter time in first marriage and only one child, whereas the *Late instability with moderate fertility* pattern features longer first marriages with, on average, two children. Men in the three clusters exhibit slightly below-average levels of human capital. Women's attachment to full-time employment is above average in the patterns that lack remarriage and particularly high in the pattern of early instability. Nevertheless, trajectories of marital instability without remarriage are characterized by substantially below-average levels of wealth.

[TABLE 1 HERE]

The last two patterns (14.1%) deviate from the standard pattern as they largely lack marriage entry. Additionally, the two patterns differ in terms of fertility behaviour. The *Unmarried childbearing* (4.5%) pattern features childbearing at above-average age (first childbirth on average at 30.1 years). It is more common among women and is associated with average levels of human capital for women, but below-average levels for men. Respondents in this pattern hold the lowest levels of wealth overall. The pattern of *No family formation* (9.7%) features trivial fertility levels. It is more common amongst men, for whom it is associated with below-average human capital. Women in this cluster show comparatively high levels of human capital. Overall wealth levels are only slightly below the average for this last pattern.

## 5.2. Wealth across major family patterns

We move on to multivariate OLS regressions, which allow us to obtain better estimates of the study associations by adjusting for confounders while also clustering standard errors at the household level. As a first step, we examine differences in men's and women's wealth ranks between the *Standard* pattern and *Non-standard* patterns (i.e., a combination of all patterns other than the *Standard* pattern). Figure 2 shows predicted personal wealth ranks for men and women in each pattern, which also provides a straightforward illustration of gender differences in wealth levels. Results show substantially and statistically significantly lower personal wealth ranks for respondents who followed *Non-standard* patterns. As expected, women hold lower average wealth ranks than men with substantial gender gaps in both the *Standard pattern* and the *Non-standard* patterns.

[FIGURE 2 HERE]

While these results are in line with our expectations that deviance from the *Standard pattern* is associated with wealth penalties, we also anticipated substantial variation in wealth across specific *Non-standard* patterns whereby increasing deviation was expected to be associated with increasing wealth penalties. To address this, Figure 3 shows predicted wealth ranks across the *Standard* pattern and specific *Non-standard* patterns for men and women.

In addition to the *Standard* pattern, we identified five family patterns that also feature a continuous marriage but depart from the *Standard* patterns on fertility levels and timing of marriage and fertility. These patterns are displayed at the top of the graph, below predictions for men and women in the *Standard* pattern. In line with our thesis of lower penalties for smaller deviations from a standard life course, for women, we find that the majority of patterns featuring smaller deviations are associated with a similar rank in the wealth distribution compared to the *Standard* pattern. Only the patterns with high and very high fertility levels are associated with substantially and significantly less wealth; 6 and 11 ranks lower, respectively, compared to women in the *Standard* pattern. For men, deviation from the *Standard* pattern is associated with more substantial penalties. Only the *Late standard* pattern exhibits similar personal wealth ranks compared to the *Standard* pattern. Men in the remaining patterns of stable marriage rank statistically below men in the *Standard* pattern, although only by 5 to 9 ranks. We find that, compared to men, women's personal wealth ranks are penalized more by above-average fertility patterns.

[FIGURE 3 HERE]

Next, we move to the three family patterns that feature marital instability and thus higher deviation from the *Standard* pattern. We find that all of them are associated with substantially lower personal wealth ranks for women; 13 to 16 lower ranks than the *Standard* pattern. Women in these patterns, however, rank only slightly below married women that had four or more children. For men we find similar results to those of women; ranks 12 to 15 points below the *Standard pattern* for personal wealth. As an exception, men in the *Early instability with low fertility* pattern achieve wealth ranks similar to those associated with the *Standard pattern*. Unlike women, men in the other two patterns of marital instability rank lower than men in the *Very high fertility marriage* pattern. With the exception of the *Remarriage* pattern, women's personal wealth ranks within the patterns featuring marital instability are substantially below those of men.

The last two patterns feature unmarried family trajectories. In the personal wealth distribution, both men and women within the *Unmarried childbearing* pattern rank the lowest overall, compared to the *Standard* pattern; 19 and 18 ranks lower, respectively. Women's ranks across all family patterns are the lowest in the *Unmarried childbearing* pattern. However, ranks

are not statistically different to most of the marital instability patterns or the stable marriage with high fertility pattern. The pattern of *No family formation* is associated with substantially lower ranks than the *Standard* pattern for both men and women, although it is more detrimental for men. For women, wealth penalties associated with the *No family formation* pattern are comparable to those of the *High fertility marriage* pattern. For men, wealth penalties associated with the *No family formation* pattern are comparable to those of the *Remarriage* and *Late instability with moderate fertility* patterns.

## 6. Conclusion

This paper has adopted an innovative long-term approach to examine the extent to which the family life course matters for wealth disparities at pre-retirement age (between ages 51 and 59) of baby boomer birth cohorts in West Germany. Against the backdrop of increasingly diverse family life courses and their relevance for the dynamics of social stratification, we proposed that departures from a culturally and institutionally supported family pattern of a stable marriage with (on average, two) children is associated with lower wealth at older age. We also proposed that the type of departure (regarding the occurrences, timings and ordering of typical family transitions) matters for explaining wealth disparities at older age. Gender differences were also expected, given traditional gendered divisions in work and family roles. We tested these expectations using data from the German Socio-Economic Panel, and deployed sequence analysis to identify major family pathways. OLS regressions were used to predict respondents' wealth ranks at ages 51 to 59.

Our results indicated that departure from the standard family trajectory was associated with substantially lower personal wealth for both men and women. However, women's wealth ranks were substantially lower than those of men, in line with previous research on the gender wealth gap and the within-couple wealth gap (Grabka et al., 2015; Sierminska et al., 2010). In most cases, our results also supported our arguments about higher wealth penalties for greater deviation and lower penalties for moderate deviation from the standard pattern. A range of relevant empirical associations support this claim. First, low fertility or the absence of fertility within marriage was associated with only negligible differences in personal wealth for women, and small declines for men. On one hand, lower fertility can be the result of meager economic capacity among men. On the other hand, childbearing results in greater opportunity costs for women than men, and thus fewer child-related career breaks taken by women with few or no children. The longer women can spend in the labor market, the higher their wealth accumulation potential. Second, high fertility (with three, but particularly, four or more children) was

associated with substantial wealth penalties for both men and women. Despite potentially high saving incentives, the economic burdens of large families accumulate over time. Third, patterns of marital instability were associated with low wealth ranks for men and women, reflecting the immediate costs and long-term wealth penalties of partnership dissolution. In addition, selection of financially disadvantaged couples into divorce likely matters. However, wealth was not lower for men who divorced early and did not remarry. While women experienced lasting disadvantages, potentially due childcare responsibilities, men may have had a substantial amount of time to recover financially, especially given the fact that child support from non-residential fathers is capped and adjusted according to the father's income and child's age. Fourth, while the absence of marriage and childbearing over the life course can be considered a substantial deviation from the standard life course, this pattern was associated with only moderately though statistically significantly lower wealth for women. The fact that childless women do not incur child-related career disruptions might explain the small wealth difference.

Several of our study's limitations are noteworthy. First, due to the mandatory nature of the German pay-as-you-go pension system, public pension entitlements are not collected in the SOEP. It may, however, be argued that such entitlements should be seen as an extension of working age income rather than wealth as German pension points cannot be liquidized, used as collateral or passed on to next of kin (Sierminska et al., 2010). Second, survey questions about personal shares of jointly owned wealth may be ambiguous to respondents in terms of perceived or legal ownership. This may particularly be true for continuously married respondents. Third, information on the time children spent in their parents' household or with which parent they resided after divorce was not available retrospectively within the SOEP. Nevertheless, we argue that our approach provides crucial information on the relationship between parenthood and wealth, in intersection with marital histories. We argue that even if children do not reside in the same household as parents, child-related costs such as child allowance or financial transfers can influence economic decisions and saving incentives.

Despite these limitations, our study makes substantial contributions to the literature that addresses the links between family dynamics and economic wellbeing. We addressed entire family trajectories, from early adulthood to pre-retirement age, to extend and nuance our knowledge of the role of earlier family behavior for later economic wellbeing. While previous research has predominantly focused on marital histories and excluded the role of parenthood, our empirical exercise proved useful, combining marital and childbearing histories to highlight important and substantial disparities within groups of currently unmarried (i.e., ever divorced

or never married) and currently married individuals depending on childbearing behaviors over the life course. Particularly for continuous marriage, we show relevant economic variation in older age depending on number of children, which was masked by previous research that focused solely on marital histories. Using comprehensive personal-level wealth data additionally provided a more thorough analysis of gender differences. Using per capita wealth—based on household-level wealth—obscures the fact that full financial access to all household resources is not always given. While income pooling and sharing has been shown to be less likely for childless marriages and within remarriage, looking at wealth levels, our results show substantial gender wealth differences across continuously married and unmarried respondents at older ages. As gender differences are particularly prominent in groups characterized by above-average fertility within marriage or single parenthood, the degree to which fathers and support systems compensate for the child-related depletion of women's wealth accumulation is questionable.

Future research should further scrutinize the intersection between marital and childbearing roles, including alternative functional forms for the rate of wealth accumulation over time and proposing further mechanisms for the associations between specific family patterns and wealth accumulation. As the standard family pattern is increasingly being displaced by alternative patterns that include non-traditional family arrangements such as stepfamilies or unmarried parents, we can expect increasing social acceptance and political support for the latter in the near future. Given that, it is reasonable to expect that their association with wealth accumulation will also change. Nevertheless, some family pathways may remain or become more vulnerable. We should therefore continue monitoring the economic standing of diverse families.

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# Figures and Tables

Table 1. Summary indicators of major family patterns

| | Family patterns | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stable marriage | | | | Marital instability | | | No marriage | | |
| | Standard | Late standard | Low fertility marriage | High fertility marriage | Childless marriage | Very high fertility marriage | Re-marriage | Early instability w/ low fertility | Late instability w/ mode-rate fertility | Un-married child-bearing | No family formation | |
| | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) |
| **Wealth levels** | | | | | | | | | | | | |
| Personal net wealth | 185.92 (304.08) | 258.52 (451.54) | 190.61 (323.16) | 151.58 (297.88) | 187.61 (295.51) | 141.69 (345.05) | 176.12 (453.34) | 134.87 (224.50) | 131.69 (244.17) | 94.00 (233.48) | 168.46 (375.35) | 175.98 (330.58) |
| **Basic demographics** | | | | | | | | | | | | |
| Female | 0.66 | 0.34 | 0.64 | 0.70 | 0.61 | 0.63 | 0.59 | 0.67 | 0.70 | 0.69 | 0.43 | 0.60 |
| Migration background | 0.13 | 0.09 | 0.09 | 0.14 | 0.07 | 0.20 | 0.06 | 0.11 | 0.08 | 0.09 | 0.07 | 0.11 |
| Cohort | | | | | | | | | | | | |
| 1943-1950 | 0.33 | 0.14 | 0.34 | 0.27 | 0.27 | 0.21 | 0.25 | 0.29 | 0.23 | 0.10 | 0.17 | 0.26 |
| 1951-1958 | 0.37 | 0.28 | 0.36 | 0.37 | 0.40 | 0.39 | 0.36 | 0.45 | 0.35 | 0.22 | 0.36 | 0.36 |
| 1959-1966 | 0.30 | 0.57 | 0.30 | 0.36 | 0.33 | 0.40 | 0.39 | 0.26 | 0.42 | 0.68 | 0.47 | 0.38 |
| Number of siblings | 2.11 (1.79) | 2.07 (1.78) | 1.86 (1.59) | 2.30 (1.88) | 1.69 (1.64) | 3.06 (2.35) | 2.20 (1.88) | 2.00 (1.92) | 2.02 (1.70) | 2.20 (1.75) | 1.96 (1.64) | 2.10 (1.82) |
| Parental education | | | | | | | | | | | | |
| Low | 0.20 | 0.12 | 0.16 | 0.22 | 0.14 | 0.27 | 0.21 | 0.19 | 0.18 | 0.17 | 0.11 | 0.18 |
| Middle | 0.72 | 0.70 | 0.77 | 0.68 | 0.74 | 0.62 | 0.69 | 0.76 | 0.71 | 0.73 | 0.76 | 0.72 |
| High | 0.08 | 0.18 | 0.07 | 0.10 | 0.11 | 0.12 | 0.10 | 0.05 | 0.11 | 0.10 | 0.13 | 0.10 |
| Parental occupational prestige | 40.42 (11.57) | 44.37 (13.21) | 40.90 (11.67) | 41.24 (12.57) | 42.47 (13.07) | 40.67 (12.79) | 40.45 (10.54) | 39.46 (11.31) | 41.70 (11.78) | 41.38 (12.96) | 43.27 (13.05) | 41.47 (12.30) |
| **Family pattern up to age 50** | | | | | | | | | | | | |
| Age at first birth | 25.87 (4.00) | 34.25 (3.61) | 29.59 (5.47) | 24.22 (3.79) | 44.77 (3.47) | 24.69 (5.02) | 26.94 (6.07) | 27.29 (6.91) | 26.11 (4.61) | 30.06 (6.66) | 43.08 (2.81) | 27.88 (6.03) |

| | | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of children | 2.01 | 2.54 | 1.01 | 3.00 | 0.04 | 4.57 | 2.53 | 1.03 | 2.06 | 1.49 | 0.23 | 1.84 |
| | (0.10) | (0.58) | (0.11) | (0.05) | (0.28) | (0.96) | (0.52) | (0.24) | (0.27) | (0.93) | (0.56) | (1.21) |
| Unmarried childbearing | 0.21 | 0.31 | 0.16 | 0.32 | 0.01 | 0.43 | 0.55 | 0.33 | 0.40 | 1.00 | 0.06 | 0.27 |
| Multi-partner childbearing | 0.00 | 0.01 | 0.00 | 0.04 | 0.00 | 0.15 | 0.53 | 0.01 | 0.14 | 0.00 | 0.00 | 0.04 |
| Age at first marriage | 25.15 | 33.39 | 27.09 | 23.90 | 27.83 | 24.71 | 23.50 | 23.49 | 25.22 | 41.33 | 42.59 | 27.20 |
| | (4.00) | (4.42) | (5.05) | (3.40) | (4.75) | (4.47) | (3.64) | (3.38) | (4.22) | (6.75) | (3.74) | (6.26) |
| Ever married | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.28 | 0.42 | 0.91 |
| Ever divorced | 0.06 | 0.05 | 0.14 | 0.20 | 0.32 | 0.22 | 0.96 | 0.94 | 0.88 | 0.04 | 0.06 | 0.21 |
| Ever remarried | 0.01 | 0.01 | 0.03 | 0.06 | 0.14 | 0.15 | 1.00 | 0.60 | 0.35 | 0.01 | 0.01 | 0.10 |
| **Human capital - men** | | | | | | | | | | | | |
| Education | | | | | | | | | | | | |
|   Low | 0.03 | 0.04 | 0.04 | 0.09 | 0.04 | 0.10 | 0.04 | 0.03 | 0.03 | 0.07 | 0.07 | 0.05 |
|   Middle | 0.54 | 0.35 | 0.54 | 0.43 | 0.48 | 0.40 | 0.63 | 0.63 | 0.58 | 0.62 | 0.51 | 0.49 |
|   High | 0.43 | 0.61 | 0.41 | 0.48 | 0.48 | 0.49 | 0.33 | 0.35 | 0.39 | 0.32 | 0.42 | 0.46 |
| Full-time employment years | 31.43 | 28.31 | 31.06 | 30.51 | 30.34 | 29.00 | 28.59 | 31.08 | 30.92 | 28.67 | 27.20 | 29.79 |
| | (5.70) | (6.62) | (6.23) | (6.80) | (6.33) | (7.01) | (7.47) | (6.83) | (5.30) | (7.66) | (8.25) | (6.84) |
| Non-/Un-employment episodes | 0.34 | 0.49 | 0.51 | 0.49 | 0.55 | 0.64 | 0.66 | 0.81 | 0.72 | 0.87 | 0.77 | 0.55 |
| | (0.73) | (0.88) | (0.89) | (0.87) | (0.94) | (1.06) | (1.20) | (1.17) | (1.07) | (1.22) | (1.12) | (0.95) |
| Occupational prestige (mode) | 48.29 | 51.97 | 48.33 | 46.70 | 49.42 | 48.21 | 46.09 | 48.03 | 45.97 | 43.50 | 46.60 | 48.32 |
| **Human capital - women** | | | | | | | | | | | | |
| Education | | | | | | | | | | | | |
|   Low | 0.13 | 0.04 | 0.06 | 0.18 | 0.08 | 0.28 | 0.13 | 0.10 | 0.13 | 0.11 | 0.07 | 0.12 |
|   Middle | 0.64 | 0.40 | 0.72 | 0.56 | 0.54 | 0.44 | 0.69 | 0.66 | 0.66 | 0.58 | 0.51 | 0.60 |
|   High | 0.23 | 0.56 | 0.21 | 0.26 | 0.38 | 0.28 | 0.18 | 0.24 | 0.22 | 0.30 | 0.43 | 0.28 |
| Full-time employment years | 11.68 | 12.79 | 16.16 | 9.92 | 24.84 | 7.14 | 14.04 | 19.89 | 15.77 | 17.19 | 25.52 | 14.70 |
| | (9.70) | (7.45) | (10.80) | (9.04) | (10.49) | (7.87) | (9.79) | (10.58) | (9.25) | (10.21) | (9.81) | (10.97) |
| Non-/Un-employment episodes | 2.01 | 2.28 | 1.65 | 2.16 | 1.26 | 2.35 | 2.32 | 2.28 | 2.44 | 2.22 | 1.26 | 1.97 |
| | (1.35) | (1.28) | (1.31) | (1.35) | (1.33) | (1.42) | (1.33) | (1.42) | (1.37) | (1.39) | (1.37) | (1.40) |
| Occupational prestige (mode) | 41.99 | 49.41 | 44.02 | 41.20 | 47.13 | 39.75 | 42.31 | 44.03 | 42.64 | 43.95 | 48.86 | 43.53 |
| **Observations** | 2243 | 842 | 1082 | 893 | 617 | 522 | 224 | 352 | 414 | 345 | 786 | 8320 |
| **Individuals** | 1695 | 674 | 828 | 687 | 467 | 399 | 169 | 263 | 313 | 286 | 619 | 6400 |
| **% respondents** | 26.48 | 10.53 | 12.94 | 10.73 | 7.30 | 6.23 | 2.64 | 4.11 | 4.89 | 4.47 | 9.67 | 100.00 |

*Notes:* Data are from Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017; imputed, unweighted. See Table A.3. for descriptive result using non-imputed data.

**Figure 1.** Relative frequency sequence plots of the identified major family patters

## Remarriage

Sequence medoids    Sequence medoids    Dissimilarities to medoids

15 19 23 27 31 35 39 43 47    15 19 23 27 31 35 39 43 47    0.0 0.5 1.0 1.5 2.0 2.5 3.0

Representation quality: R2=0.68 and F=3.18

## Early instability with low fertility

Sequence medoids    Sequence medoids    Dissimilarities to medoids

15 19 23 27 31 35 39 43 47    15 19 23 27 31 35 39 43 47    0.0 0.5 1.0 1.5 2.0 2.5 3.0

Representation quality: R2=0.57 and F=3.92

## Late instability with moderate fertility

Sequence medoids    Sequence medoids    Dissimilarities to medoids

15 19 23 27 31 35 39 43 47    15 19 23 27 31 35 39 43 47    0.0 0.5 1.0 1.5 2.0 2.5 3.0

Representation quality: R2=0.41 and F=2.72

## Unmarried childbearing

Sequence medoids    Sequence medoids    Dissimilarities to medoids

15 19 23 27 31 35 39 43 47    15 19 23 27 31 35 39 43 47    0.0 0.5 1.0 1.5 2.0 2.5 3.0

Representation quality: R2=0.72 and F=9.36

## No family formation

Sequence medoids    Sequence medoids    Dissimilarities to medoids

15 19 23 27 31 35 39 43 47    15 19 23 27 31 35 39 43 47    0.0 0.2 0.4 0.6 0.8 1.0 1.2 1.4

Representation quality: R2=0.86 and F=55.53

**Legend:**
- Single, never married
- Married
- Previously married
- Re-married
- Childless
- 1 child
- 2 children
- 3 children
- 4+ children

*Notes:* Retrospective data on marital and fertility histories are from the Socio-Economic Panel Survey v34 (2002 - 2017; non-imputed).

**Figure 2.** Predicted personal wealth rank of men and women aged 51 to 59 in the standard family pattern and the non-standard family pattern based on multivariable OLS regression models.



Predicted personal wealth rank

*Notes:* Whiskers indicate 95% confidence intervals. Data are from the Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017; unweighted; multiply imputed). Models include control variables for age, migration background, birth cohort, number of siblings, parental education, parental occupational prestige, marital events after the age of 50 (marriage, divorce, widowhood). Full model results in Table A.4. in the supplementary material. * p<.05, ** p<.01, *** p<.001 indicate whether coefficient is significantly different to reference (Standard) in regression.

**Figure 3.** Predicted personal wealth rank of men and women aged 51 to 59 across the diversity of family patterns based on multivariable OLS regression models.



Predicted personal wealth rank

*Notes:* Whiskers indicate 95% confidence intervals. Data are from the Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017; unweighted; multiply imputed). Models include control variables for age, migration background, birth cohort, number of siblings, parental education, parental occupational prestige, marital events after the age of 50 (marriage, divorce, widowhood). Full model results in Table A.4. in the supplementary material. * p<.05, ** p<.01, *** p<.001 indicate whether coefficient is significantly different to reference (Standard) in regression.

# Appendix

**SOEP retrospective family histories data**

The SOEP provides retrospective marital and fertility information within the datasets BIOMARSY[12] and BIOBIRTH. Retrospective information is collected using a biographical questionnaire, which is administered once within one of the first years after panel entry. An exception is men's fertility history data, which have only been collected for men who entered the SOEP in 2000 or later. Retrospective datasets are updated annually using information provided within the personal questionnaire regarding the current family status and family events that may have occurred since 1st January of the previous year. Detailed information on retrospective data is available in Goebel (2017).

**Additional information on personal-level SOEP wealth data**

Whereas other panel studies commonly measure wealth at the household level and one household member provides information on the financial standing of the entire household, within the SOEP, wealth information is measured at the individual level. This means that each household member over 16 years of age is questioned about their personal and potentially shared assets and liabilities. The SOEP is thus currently the only household panel study that provides comprehensive personal-level wealth measures over four waves.

Wealth data collection thereby follows several steps. First, a filter question (yes/no) is asked to assess whether the respondent personally holds a certain type of assets or liability. Second, if respondents answer in the affirmative, they are asked to provide the total value. Third, a second filter question (yes/no) is posed to assess whether those assets and liabilities are held jointly. This is only done for wealth components that can theoretically be owned jointly (e.g., housing equity). Fourth, if respondents affirm joint ownership, they are asked about their personal share in percentage points.

Using the total metric value of the wealth component and personal share, the SOEP team calculates the value of personally owned assets and liabilities. Based on all household members' personal wealth, the SOEP team further aggregates personal-level wealth to the household-level, so that SOEP users are provided with both personal-level and household-level wealth measurements (Grabka & Westermeier, 2015).

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[12] Additionally, the SOEP provides monthly retrospective marital histories within the dataset BIOMARSM, which was however not used within the current study.

**Table A.1.** Variables used for the multiple imputation. Number and percentages of imputed missing data.

| Variable category | Variable | 2002 | | 2007 | | 2012 | | 2017 | |
|---|---|---|---|---|---|---|---|---|---|
| | | Missing values | Share of missing values | Missing values | Share of missing values | Missing values | Share of missing values | Missing values | Share of missing values |
| Wealth | Personal net wealth (rank)* | none (SOEP imputed data used) | | | | | | | |
| Basic demographics | Gender* | none | | | | | | | |
| | Age* | none | | | | | | | |
| | Migration background* | none | | | | | | | |
| | SOEP sample | none | | | | | | | |
| | Federal state | none | | | | | | | |
| | Living area | 0 | 0.00 | 39 | 2.16 | 34 | 1.59 | 20 | 0.78 |
| Family | Family typology* | none | | | | | | | |
| | Divorce after age 50* | none | | | | | | | |
| | Marriage after age 50* | none | | | | | | | |
| | Widowhood after age 50* | none | | | | | | | |
| Family of origin | Parental education* | 134 | 7.44 | 125 | 6.91 | 78 | 3.66 | 88 | 3.41 |
| | Parental SIOPS* | 318 | 17.67 | 277 | 15.32 | 223 | 10.45 | 212 | 8.22 |
| | Number of siblings* | 0 | 0.00 | 0 | 0.00 | 1 | 0.05 | 16 | 0.62 |
| Human capital | Full-time employment experience | 1 | 0.06 | 1 | 0.06 | 1 | 0.05 | 4 | 0.16 |
| | Number of unemployment spells | none | | | | | | | |
| | SIOPS mode | 332 | 18.44 | 216 | 11.95 | 209 | 9.79 | 179 | 6.94 |
| | Highest level of education | 1 | 0.06 | 4 | 0.22 | 3 | 0.14 | 8 | 0.31 |

*Notes:* Data are from Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017)

*Variables used in regression analyses

**Figure A.1.** Predicted per capita wealth rank of men and women aged 51 to 59 in the standard family pattern and the non-standard family pattern based on multivariable OLS regression models.
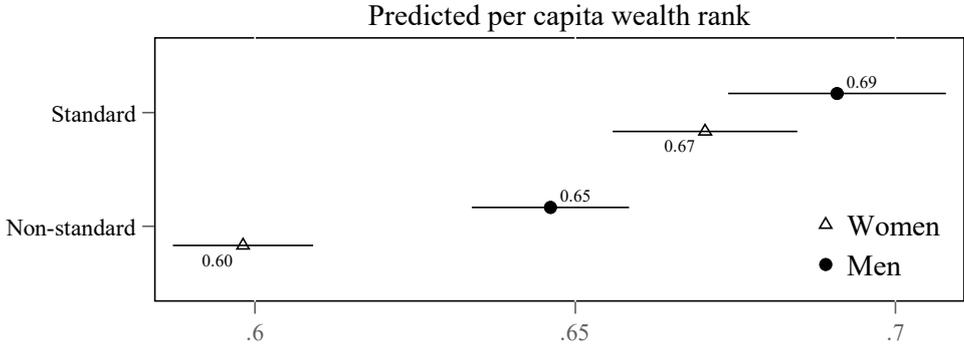


*Notes:* Whiskers indicate 95% confidence intervals. Data are from the Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017; unweighted; multiply imputed). Models include control variables for age, migration background, birth cohort, number of siblings, parental education, parental occupational prestige, marital events after the age of 50 (marriage, divorce, widowhood).

**Figure A.2.** Predicted per capita wealth rank of men and women aged 51 to 59 across the diversity of family patterns based on multivariable OLS regression models.
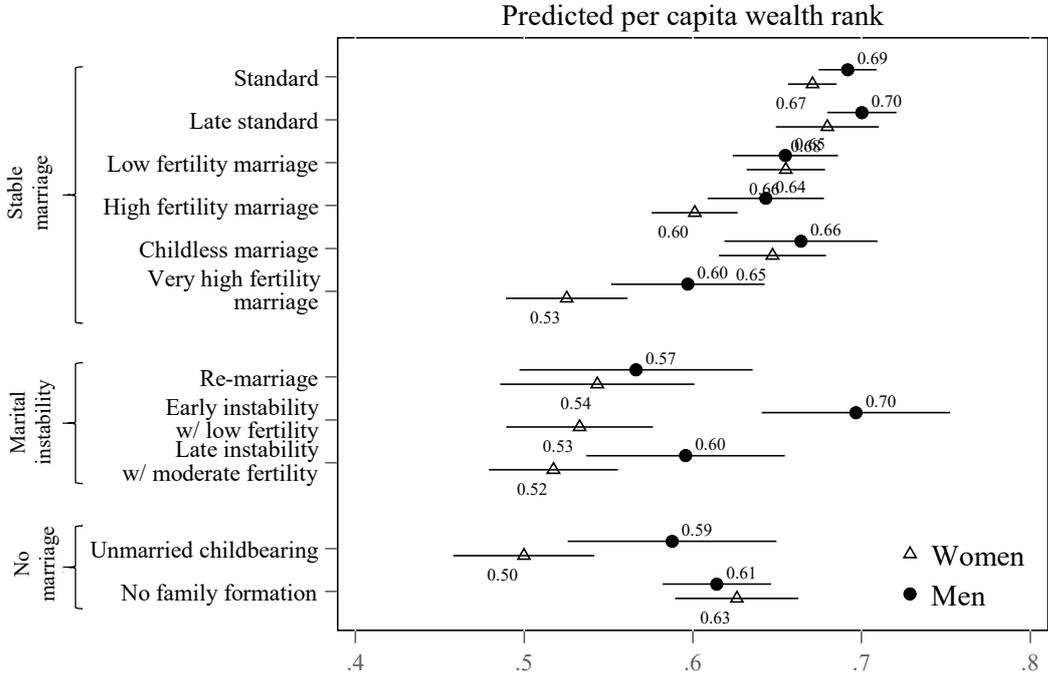


*Notes:* Whiskers indicate 95% confidence intervals. Data are from the Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017; unweighted; multiply imputed). Models include control variables for age, migration background, birth cohort, number of siblings, parental education, parental occupational prestige, marital events after the age of 50 (marriage, divorce, widowhood).

**Figure A.3.** Cluster cut-off criteria
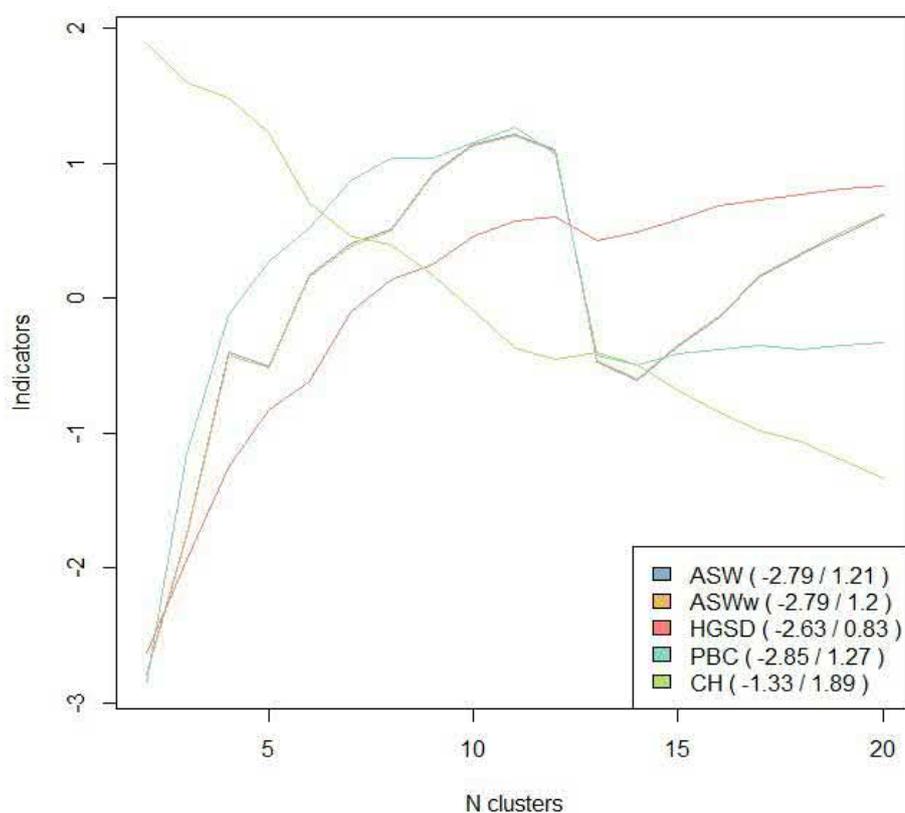


*Notes:* ASW-Average silhouette width; ASWw-Average silhouette width (weighted); HGSD-Hubert's Sommers´ D; PBC-Point Biserial Correlation; CH-Calinski-Harabasz index (see Studer (2013) for definitions).

**Table A.2.** Case numbers across the eleven family pathways.

| Family patterns | Men | | Women | | Total | |
|---|---|---|---|---|---|---|
| | N | % | N | % | N | % |
| Standard pattern | 587 | 22.77 | 1108 | 28.99 | 1695 | 26.48 |
| Late standard pattern | 443 | 17.18 | 231 | 6.04 | 674 | 10.53 |
| Stable marriage w/ 1 child | 307 | 11.91 | 521 | 13.63 | 828 | 12.94 |
| Stable marriage w/ 3 children | 212 | 8.22 | 475 | 12.43 | 687 | 10.73 |
| Childless stable marriage | 182 | 7.06 | 285 | 7.46 | 467 | 7.30 |
| Stable marriage w/ 4+ children | 146 | 5.66 | 253 | 6.62 | 399 | 6.23 |
| Remarriage | 71 | 2.75 | 98 | 2.56 | 169 | 2.64 |
| Early marital instability w/ low fertility | 88 | 3.41 | 175 | 4.58 | 263 | 4.11 |
| Late marital instability w/ moderate fertility | 94 | 3.65 | 219 | 5.73 | 313 | 4.89 |
| Unmarried childbearing | 90 | 3.49 | 196 | 5.13 | 286 | 4.47 |
| No family formation | 358 | 13.89 | 261 | 6.83 | 619 | 9.67 |
| **Total** | **2578** | **100** | **3822** | **100** | **6400** | **100** |

*Notes:* Data are from Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017)

**Table A.3.** Summary indicators of major family patterns using non-imputed data

| | Family patterns | | | | | | | | | | | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Stable marriage | | | | Marital instability | | | No marriage | | |
| | **Standard** | **Late standard** | **Low fertility marriage** | **High fertility marriage** | **Childless marriage** | **Very high fertility marriage** | **Re-marriage** | **Early instability w/ low fertility** | **Late instability w/ mode-rate fertility** | **Un-married child-bearing** | **No family formation** | |
| | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) | mean/(SE) |
| Personal net wealth | 199.30 | 249.17 | 188.70 | 169.37 | 204.81 | 174.81 | 220.25 | 140.84 | 134.99 | 108.88 | 187.72 | 188.50 |
| | (311.68) | (400.01) | (264.97) | (327.10) | (280.61) | (398.80) | (508.36) | (225.54) | (233.66) | (258.37) | (406.10) | (331.63) |
| Female | 0.62 | 0.30 | 0.61 | 0.67 | 0.57 | 0.52 | 0.59 | 0.65 | 0.69 | 0.70 | 0.41 | 0.57 |
| Migration background | 0.08 | 0.08 | 0.05 | 0.10 | 0.05 | 0.12 | 0.05 | 0.05 | 0.06 | 0.13 | 0.06 | 0.08 |
| Cohort | | | | | | | | | | | | |
| 1943-1950 | 0.29 | 0.14 | 0.28 | 0.20 | 0.23 | 0.16 | 0.24 | 0.24 | 0.20 | 0.06 | 0.17 | 0.22 |
| 1951-1958 | 0.39 | 0.28 | 0.37 | 0.40 | 0.38 | 0.38 | 0.36 | 0.47 | 0.35 | 0.20 | 0.38 | 0.36 |
| 1959-1966 | 0.32 | 0.58 | 0.35 | 0.41 | 0.39 | 0.46 | 0.41 | 0.29 | 0.45 | 0.74 | 0.45 | 0.42 |
| Number of siblings | 2.07 | 2.05 | 1.80 | 2.21 | 1.68 | 2.67 | 2.14 | 2.08 | 1.96 | 2.02 | 1.93 | 2.03 |
| | (1.81) | (1.76) | (1.51) | (1.80) | (1.64) | (2.13) | (1.70) | (1.76) | (1.57) | (1.69) | (1.56) | (1.74) |
| Parental education | | | | | | | | | | | | |
| Low | 0.16 | 0.11 | 0.13 | 0.17 | 0.09 | 0.19 | 0.19 | 0.20 | 0.16 | 0.15 | 0.09 | 0.14 |
| Middle | 0.75 | 0.69 | 0.79 | 0.72 | 0.78 | 0.67 | 0.68 | 0.74 | 0.74 | 0.73 | 0.79 | 0.74 |
| High | 0.09 | 0.19 | 0.07 | 0.10 | 0.13 | 0.13 | 0.13 | 0.06 | 0.10 | 0.11 | 0.12 | 0.11 |
| Parental occupational prestige | 41.06 | 44.69 | 41.42 | 41.76 | 43.32 | 42.50 | 42.47 | 39.73 | 41.72 | 41.99 | 43.72 | 42.15 |
| **Family pattern until age 50** | | | | | | | | | | | | |
| Age at first birth | 26.24 | 34.59 | 29.94 | 24.49 | 0.70 | 25.57 | 26.73 | 28.06 | 26.15 | 30.11 | 7.71 | 23.87 |
| | (4.06) | (3.62) | (5.38) | (3.68) | (5.57) | (4.98) | (5.98) | (6.93) | (4.66) | (6.14) | (16.49) | (11.66) |
| Number of children | 2.01 | 2.51 | 1.02 | 3.00 | 0.03 | 4.50 | 2.58 | 1.06 | 2.07 | 1.46 | 0.23 | 1.81 |
| | (0.13) | (0.56) | (0.12) | (0.05) | (0.26) | (0.86) | (0.53) | (0.34) | (0.29) | (0.72) | (0.54) | (1.19) |
| Unmarried childbearing | 0.21 | 0.33 | 0.17 | 0.29 | 0.01 | 0.43 | 0.56 | 0.33 | 0.41 | 1.00 | 0.07 | 0.27 |
| Multi-partner childbearing | 0.00 | 0.01 | 0.01 | 0.05 | 0.00 | 0.15 | 0.53 | 0.02 | 0.15 | 0.00 | 0.00 | 0.04 |
| Age at first marriage | 25.37 | 33.50 | 27.23 | 23.95 | 28.10 | 25.27 | 23.77 | 23.63 | 25.05 | 10.91 | 19.12 | 25.15 |
| | (4.00) | (4.46) | (5.47) | (3.74) | (4.99) | (4.98) | (4.09) | (4.51) | (4.46) | (18.44) | (21.46) | (9.96) |
| Ever married | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.27 | 0.45 | 0.91 |
| Ever divorced | 0.06 | 0.06 | 0.16 | 0.24 | 0.34 | 0.25 | 0.96 | 0.95 | 0.88 | 0.04 | 0.06 | 0.24 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Ever remarried | 0.01 | 0.01 | 0.03 | 0.06 | 0.14 | 0.17 | 1.00 | 0.63 | 0.35 | 0.02 | 0.01 | 0.11 |
| **Human capital - men** | | | | | | | | | | | | |
| Education | | | | | | | | | | | | |
|   Low | 0.02 | 0.04 | 0.04 | 0.09 | 0.03 | 0.12 | 0.06 | 0.03 | 0.03 | 0.07 | 0.08 | 0.05 |
|   Middle | 0.54 | 0.31 | 0.50 | 0.41 | 0.49 | 0.34 | 0.60 | 0.59 | 0.54 | 0.56 | 0.49 | 0.46 |
|   High | 0.44 | 0.65 | 0.46 | 0.50 | 0.49 | 0.53 | 0.33 | 0.38 | 0.43 | 0.37 | 0.44 | 0.48 |
| Full-time employment years | 31.73 | 27.47 | 30.77 | 30.79 | 29.95 | 29.21 | 29.66 | 32.26 | 31.20 | 28.77 | 27.74 | 29.82 |
| | (4.95) | (6.66) | (6.29) | (6.83) | (6.56) | (6.37) | (6.98) | (6.61) | (4.49) | (6.53) | (7.48) | (6.51) |
| Non-/Un-employment episodes | 0.32 | 0.52 | 0.47 | 0.48 | 0.64 | 0.56 | 0.63 | 0.78 | 0.70 | 1.04 | 0.77 | 0.55 |
| | (0.68) | (0.90) | (0.77) | (0.84) | (0.97) | (1.04) | (1.23) | (1.17) | (1.08) | (1.35) | (1.14) | (0.95) |
| Occupational prestige mode | 48.41 | 53.01 | 49.22 | 46.84 | 49.72 | 50.41 | 45.44 | 48.90 | 45.36 | 43.61 | 46.82 | 48.87 |
| **Human capital - women** | | | | | | | | | | | | |
| Education | | | | | | | | | | | | |
|   Low | 0.10 | 0.03 | 0.04 | 0.13 | 0.04 | 0.19 | 0.16 | 0.09 | 0.09 | 0.12 | 0.04 | 0.09 |
|   Middle | 0.61 | 0.38 | 0.70 | 0.59 | 0.49 | 0.48 | 0.73 | 0.64 | 0.69 | 0.51 | 0.46 | 0.59 |
|   High | 0.28 | 0.59 | 0.25 | 0.28 | 0.47 | 0.31 | 0.11 | 0.27 | 0.22 | 0.36 | 0.50 | 0.32 |
| Full-time employment years | 11.67 | 13.60 | 16.85 | 10.10 | 26.84 | 7.44 | 14.54 | 18.36 | 14.90 | 16.19 | 25.17 | 15.10 |
| | (9.70) | (7.33) | (10.57) | (8.60) | (9.15) | (7.37) | (9.45) | (10.29) | (9.08) | (9.49) | (9.57) | (10.78) |
| Non-/Un-employment episodes | 2.11 | 2.36 | 1.68 | 2.39 | 1.34 | 2.64 | 2.37 | 2.30 | 2.53 | 2.24 | 1.36 | 2.07 |
| | (1.32) | (1.25) | (1.36) | (1.27) | (1.45) | (1.32) | (1.33) | (1.43) | (1.34) | (1.36) | (1.40) | (1.40) |
| Occupational prestige mode | 43.12 | 50.04 | 45.02 | 42.18 | 49.07 | 40.56 | 42.33 | 44.53 | 41.68 | 44.68 | 50.49 | 44.54 |
| **Observations** | 1057 | 449 | 531 | 424 | 318 | 242 | 118 | 178 | 241 | 183 | 410 | 4151 |
| **Individuals** | 852 | 375 | 447 | 343 | 253 | 201 | 100 | 140 | 194 | 161 | 340 | 3406 |
| **% respondents** | 25.01 | 11.01 | 13.12 | 10.07 | 7.43 | 5.90 | 2.94 | 4.11 | 5.70 | 4.73 | 9.98 | 100.00 |

*Notes:* Data are from Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017); non-imputed, unweighted.

**Table A.4.** Multivariate regression models of personal net wealth (rank transformed) separately for men and women

| | Dummy (Standard vs Non-standard) | | Family diversity | |
|---|---|---|---|---|
| | Women B/(SE) | Men B/(SE) | Women B/(SE) | Men B/(SE) |
| Non-standard (Ref.: Standard pattern) | -0.07*** (0.01) | -0.07*** (0.01) | | |
| Family patterns (Ref.: Standard pattern) | | | | |
|   Late standard | | | 0.02 (0.02) | 0.01 (0.02) |
|   Low fertility marriage | | | -0.01 (0.02) | -0.05** (0.02) |
|   High fertility marriage | | | -0.07*** (0.02) | -0.05* (0.03) |
|   Childless marriage | | | -0.03 (0.02) | -0.08** (0.03) |
|   Very high fertility marriage | | | -0.11*** (0.02) | -0.08** (0.03) |
|   Remarriage | | | -0.11*** (0.03) | -0.15*** (0.04) |
|   Instability w/ low fertility | | | -0.13*** (0.03) | -0.05 (0.03) |
|   Late instability w/ moderate fertility | | | -0.15*** (0.02) | -0.13*** (0.03) |
|   Unmarried childbearing | | | -0.18*** (0.03) | -0.17*** (0.04) |
|   No family formation | | | -0.06** (0.02) | -0.14*** (0.02) |
| Age | 0.00* (0.00) | 0.00* (0.00) | 0.00* (0.00) | 0.00* (0.00) |
| Migration background | -0.12*** (0.02) | -0.17*** (0.02) | -0.12*** (0.02) | -0.17*** (0.02) |
| Birth cohort (Ref.: 1943-1950) | | | | |
|   1951-1958 | 0.00 (0.01) | -0.02 (0.01) | 0.00 (0.01) | -0.01 (0.01) |
|   1959-1966 | -0.03* (0.02) | -0.04** (0.02) | -0.03 (0.02) | -0.04* (0.02) |
| Number of siblings (Ref.: None) | | | | |
|   1 | -0.01 (0.02) | 0.01 (0.02) | -0.01 (0.02) | 0.01 (0.02) |
|   2 | -0.03 (0.02) | -0.04 (0.02) | -0.03 (0.02) | -0.04* (0.02) |
|   3 or more | -0.08*** (0.02) | -0.07*** (0.02) | -0.07*** (0.02) | -0.07*** (0.02) |
| Parental educational level (Ref.: Low) | | | | |
|   Intermediate | 0.06*** (0.02) | 0.04* (0.02) | 0.05** (0.02) | 0.04* (0.02) |
|   High | 0.11*** (0.02) | 0.06* (0.03) | 0.10*** (0.02) | 0.06* (0.03) |
| Parental occupational prestige | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) | 0.00*** (0.00) |
| Ever married between age 50 and 59 | -0.05 (0.03) | -0.06* (0.03) | -0.02 (0.03) | -0.03 (0.03) |
| Ever divorced between age 50 and 59 | -0.08* | -0.12*** | -0.09* | -0.13*** |

|  | (0.03) | (0.03) | (0.03) | (0.03) |
|---|---|---|---|---|
| Ever widowed between age 50 and 59 | -0.08* | -0.03 | -0.08* | -0.04 |
|  | (0.03) | (0.05) | (0.03) | (0.05) |
| Constant | 0.35*** | 0.42*** | 0.37*** | 0.41*** |
|  | (0.09) | (0.11) | (0.09) | (0.11) |
| N Observations | 5028 | 3292 | 5028 | 3292 |
| N Individuals | 3828 | 2583 | 3822 | 2578 |

*Notes:* Data are from Socio-Economic Panel Survey v34 (2002, 2007, 2012, 2017); non-imputed, unweighted.
* p<.05, ** p<.01, *** p<.001