Building up wealth hand in hand? Gendered life course interdependencies of personal wealth within older couples

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CHAPTER 1

WEALTH ACCUMULATION WITHIN COUPLES: A FRAMEWORK

1 Introduction

Across OECD countries, population ageing puts enormous pressure on pensions systems, bringing attention to the economic well-being of the elderly (Ebbinghaus, 2021; Grabka et al., 2018). Although public pension income still constitutes the largest average source of old-age provision (OECD, 2019), the ongoing privatisation of pension systems increasingly shifts the responsibility of providing economic security from the state to the individual. As an alternative to pension income, the importance to accumulate wealth to ensure economic well-being in later life has increased over the last decades (Ebbinghaus, 2015; Skopek et al., 2014). Wealth provides manifold benefits that are particularly relevant for the economic well-being in old age. After the loss of labour earnings, wealth can generate income for the elderly through the annuitisation of investments or capital gains as well as through disbursements of private pension plans or life insurance policies and provide accommodation through homeownership.

As a distinct dimension of social and economic inequality, wealth is more unevenly distributed than income, both within society and among the elderly (Killewald et al., 2017). A central dimension of wealth inequality is gender, with women having lower average wealth levels than men. Gender wealth inequality is particularly large in later stages of life, where the consequences of gender differences in wealth accumulation over the lifetime (e.g., due to pay differentials or family-related career breaks) become present (Carman & Hung, 2017; Chang, 2010; Deere & Doss, 2006; Gardiner et al., 2016; Metzger, 2018; Neelakantan & Chang, 2010; Ruel & Hauser, 2013). As wealth represents the culmination of prior saving opportunities and investment decisions, gender wealth inequality does not begin in old age but results from the biographical interplay of different areas of life, such as employment and marriage. For married women and men, their wealth accumulation does not proceed in isolation from their subsequent partner but

embedded within marriage. However, little is known about the way interlinked biographies shape women's and men's personal wealth after the age of 50. Contributing to this research gap, this dissertation asks: *How are gendered life course experiences of employment and marriage associated with the personal wealth of married women and men in later life?* More specifically, this dissertation focuses on the gendered interplay of individuals' and their spouses' biographies to examine three different wealth outcomes in later life: women's and men's personal wealth, couples' wealth ownership structures, and the within-couple gender wealth gap. Assessing economic outcomes within couples from different perspectives provides important insights into the various consequences of gendered wealth accumulation processes throughout the life course as well as into different dimensions of wealth inequality within and between couples.

Gendered wealth outcomes in later life likely differ depending on the context due to varying social norms and institutional settings. For instance, family policies and housing market regulations might shape women's and men's ways of wealth accumulation (Lersch et al., 2017; Pfeffer & Waitkus, 2021). This dissertation takes a comparative perspective to explore how such context conditions shape wealth outcomes. Precisely, I consider Western Germany, Eastern Germany, and Britain as country cases that represent historically distinct contexts of wealth accumulation. Although the institutions of the former Eastern German Democratic Republic (GDR) were replaced with those of the Western Federal Republic of Germany (FRG) after Germany's reunification in 1990, Eastern Germany continues to be influenced by its socialist past with long-lasting consequences for wealth accumulation and gender inequalities. I rely on panel data from the German Socio-Economic Panel Study (SOEP; Goebel et al., 2019) and Understanding Society – The UK Household Longitudinal Study (UKHLS; University of Essex, 2019).

The remainder of the current Chapter 1 gives an overview of research on within-couple gender wealth inequality, of which I derive the research gaps and research questions the empirical chapters of this dissertation will address and fill. Further, I present the life course framework as the underlying theoretical framework of this dissertation before applying it to the three institutional contexts Western Germany, Eastern Germany, and Britain. I then present the research design of this dissertation and the data at hand. Afterwards, I summarise the results of the three

empirical chapters. I conclude Chapter 1 by discussing the contributions of this dissertation as well as its limitations and future research avenues. The three empirical studies of this dissertation are presented in Chapters 2, 3, and 4.

1.1 Within-couple gender wealth inequality

Although wealth inequality between women and men has received increasing attention, research on within-couple wealth inequality (i.e., wealth inequality between partners) remains sparse. Driven by data limitations, most studies on gender wealth inequality are based on household-level measures of wealth. To obtain per capita measures of wealth, these studies commonly assume that wealth is pooled equally between partners, thus largely ignoring wealth disparities within the household. However, a growing strand of literature has revealed an intra-household gender gap in personal wealth, including individuals' own plus their proportional ownership of jointly owned wealth (Killewald et al., 2017; Ponthieux & Meurs, 2015). Women are found to own lower average levels of personal wealth than their male partners throughout the course of the partnership, which holds across countries (for Britain: Joseph & Rowlingson, 2012; Kan & Laurie, 2014; for developing countries: Anglade et al., 2017; Doss et al., 2019; Hillesland, 2019; for European countries: Bessière, 2019; D'Alessio, 2018; Frémeaux & Leturcq, 2020; Kapelle & Lersch, 2020; Lersch et al., 2017; Meriküll et al., 2020; Sierminska et al., 2010; Waitkus and Minkus, 2021). In Germany, for instance, women hold on average EUR 33,000 less personal net wealth than their male partners (Grabka et al., 2015).

Whereas partners likely redistribute assets between each other to a certain degree, individuals may overall benefit less from their partner's than their own wealth. That is because property rights linked to personal wealth ownership grant benefits exclusively to the legal owner while the partner has limited access to wealth and the associated benefits. Personal wealth ownership thus provides economic independence and long-term income security as well as privacy due to the absence of control by the partner and agency through sole decision-making power (Bennett & Sung, 2013; Joseph & Rowlingson, 2012). Consequently, personal wealth holdings are strongly associated with individuals' financial and psychological well-being (Kan & Laurie, 2014; Lersch, 2017a).

The unequal distribution of wealth within couples might however increase the risk of undesired economic dependency of the economically weaker partner. Wealth inequality might therefore affect partnership stability and quality by increasing conflicts and the risk of union dissolution (Dew et al., 2012). Also, holding less wealth than their male partners is found to be negatively related to women's life satisfaction in Germany, whereas they gain life satisfaction with increasing wealth relative to the partner (Tisch, 2021).

Prior research has identified three explanations for gender wealth disparities and the resulting within-couple gender wealth gap. First, women's disadvantage in personal wealth can be largely explained by gender differences in labour market participation (Ruel & Hauser, 2013; Sierminska et al., 2018; Waitkus & Minkus, 2021). Gender differences in income, employment biographies, and occupational segregation on the labour market account for large parts of the gender wealth gap. Second, women's lower wealth holdings result from different structural opportunities and constraints that promote gender differences in investment patterns (Chang, 2010, p. 93). Shaped by gender differences in risk attitudes, women tend to save and invest more risk-averse than men (Fisher, 2010; Jianakoplos & Bernasek, 1998). Third, gender differences during the re-arrangement of family wealth at inheritance planning and marital breakdown promote gender wealth inequality (Bessière, 2019). For instance, both genders might receive equally sized inheritances, yet men are more likely to obtain properties and businesses than women. Women thus tend to receive the corresponding cash compensation, which does not provide similar wealth enhancements in the future.

1.2 Research gaps

Despite these insights into the causes of within-couple gender wealth inequality, our understanding of the determinants of female and male partners' personal wealth holdings and the resulting gender wealth inequality in later life remains limited. First, although employment is central to wealth accumulation, it is not entirely clear how individuals self-accumulate wealth

throughout the career. Whereas pension entitlements[1] can be calculated based on a pension formula, including length of employment and income level, the association between employment and wealth in later life is less straightforward. Beyond surplus income, wealth largely depends on the receipt of employment-related benefits that promote wealth accumulation as well as individual investment behaviour (Chang, 2010, p. 41). However, prior research did not cover the long-term processes of wealth accumulation over the entire working life. Considering holistic career paths is important in understanding wealth outcomes in later life, as wealth accumulation is a long-term process shaped by prior, current, and future expected employment experiences.

Second, it remains both theoretically and empirically unresolved how partners' biographies shape individuals' wealth outcomes in later life. In addition to individual decisions and efforts to accumulate wealth, individuals' wealth accumulation should be linked to their subsequent partner's wealth accumulation, thus being embedded within the partnership. Therefore, wealth outcomes can only be understood under consideration of the individual within the couple context. Prior research has emphasised the relevance of the marital status for personal wealth, showing that particularly married individuals benefit from economies of scale and resource sharing (Kapelle & Lersch, 2020; Lersch, 2017b). As these studies followed an individual-level approach to explain personal wealth, they did not consider how both partners mutually shape their wealth accumulation processes, for instance throughout their careers. In contrast, prior studies on the within-couple gender wealth gap that considered characteristics from both partners relied on their characteristics over short periods paired with summary indicators of past life events, such as prior divorce or widowhood (Frémeaux & Leturcq, 2020; Grabka et al., 2015). Hence, these studies explained couple-level outcomes by taking both partners into account, but without considering when individuals might have accumulated wealth interlinked with their partners.

Third, prior research has not yet examined how institutional and social structures shape the economic outcomes of individuals' in interplay with their partners' wealth accumulation

[1] Following prior wealth research (e.g., Grabka et al., 2015), I do not operationalise public pension entitlements as part of personal wealth. Computing augmented wealth as the sum of individuals' net wealth *and* the estimated public pension wealth indicates that the regular wealth measure is a conservative estimate of the level of gender wealth inequality in Germany (see Chapter 2 for a detailed discussion).

processes. Considering macro-level structures is important, as they define both individuals' actual and perceived access to certain assets (Deere & Doss, 2006). However, it remains unclear how the interplay of social and family policies, historical developments of financial and housing systems, and prevalent gender norms shape women's and men's wealth accumulation both at the individual and the couple level. For instance, gender and family norms might shape women's employment behaviour and their access to self-accumulated economic resources, whereas the characteristics of the housing market might guide investments in property. Particular country-specific regulations of the matrimonial property regime determine the allocation of assets throughout and after marriage, which considerably affect wealth accumulation processes of women and men within marriage.

1.3 Research questions

Addressing the research gaps pointed out in the previous section, this dissertation examines the life course predictors of married women's and men's personal wealth in later life. The main research question is: *How are gendered life course experiences of employment and marriage associated with the personal wealth of married women and men in later life?*

Due to the cumulative nature of wealth accumulation, the outcomes of a lifetime of wealth accumulation become present in later life. Therefore, I consider nearly holistic career paths of individuals from age 50 onwards in late career stages and at retirement to understand wealth outcomes in later life. Different-sex marriage remains the most common civil status at around 66 percent amongst the German population of individuals aged 50 and older (Destatis, 2021). As non-marital cohabitation and same-sex unions are more common among younger age groups and occur rarely in the cohorts under study (born in the early to mid-20th century), this dissertation exclusively considers different-sex married couples.

To understand gendered wealth outcomes within couples, it is first important to understand the ways women and men accumulate wealth over the life course. Personal wealth holdings among the elderly are likely shaped by biographical experiences in the labour market. The long reach of gendered life course experiences should create wealth inequalities between women and men in

later life, which might be further shaped by historical institutional and normative contexts. The first empirical study of this dissertation thus asks:

RQ 1 How are employment trajectories related to individual wealth at older ages of men and women in Eastern and Western Germany?

The second empirical study moves to the couple level to examine the ways employment and marriage shape individuals' wealth portfolios within married couples in later life. As distinct wealth components involve different risks and benefits, I focus on the distribution of solely and jointly held assets among spouses. This differentiation provides insights into the economic situation beyond personal wealth, commonly measured as the sum of individuals' own plus their proportional ownership of jointly owned assets (Killewald et al., 2017). As women's employment biographies are more diverse than men's, I examine the predictors of the wealth distribution within couples from a female perspective and ask:

RQ 2 How is the interplay of women's employment and marriage biographies associated with the ownership structure of sole and joint assets within married couples in later life in Western Germany?

The third empirical study focuses on the within-couple gender wealth gap as a central dimension of overall wealth inequality that affects the lives of women and men within marriage. Considering the division of paid and unpaid labour over the life course, this study contributes to a better understanding of the extent and variation of within-couple gender wealth inequality across couple types and country contexts. It addresses the question:

RQ 3 How are married partners' employment biographies associated with the within-couple gender wealth gap in later life in Britain and Western Germany?

To answer these research questions, I follow a theoretical and methodological life course framework that takes a process-oriented perspective on biographies, particularly considering temporal patterns and ordering of events. Beyond covering the long-term dimension of life courses, the approach acknowledges the interdependence of multiple areas of life and considers both partners' biographies within the couple context. Using data from the SOEP and UKHLS, I apply quantitative analyses using sequence analysis and regression-based methods in all three

empirical chapters. Both data sources combine comprehensively measured longitudinal data on personal wealth combined with a rich set of retrospective information on individuals' and their partners' employment and marriage biographies.

2 Theoretical framework

In this dissertation, I focus on the life course processes of employment and marriage accompanying the accumulation of wealth to understand personal wealth outcomes. The following sections introduce the life course framework as the guiding principle of this dissertation and provide an overview of individuals' wealth accumulation processes. Afterwards, I develop a model of wealth accumulation within couples. Lastly, this model is integrated into the couple and institutional contexts to theorise about personal wealth accumulation processes over the life course.

2.1 Life course framework

The underlying research paradigm of this dissertation is the *life course framework* (Elder, 1994), which offers a rich perspective for exploring how multiple, interdependent biographies shape wealth outcomes in later life. Developed in research on ageing in the 1960s, life course research is interested in the "study of human lives between birth and death" (Mayer, 2009, p. 414). Instead of understanding social reality as linear, the life course perspective has brought back the focus on the underlying processes, particularly temporality and order, into sociological research (Abbott, 2001, p. 37ff.). The life course is commonly defined as "a sequence of socially defined events and roles that the individual enacts over time" (Giele & Elder, 1998, p. 22). The field of life course sociology analyses human development throughout the lifespan by considering complex longitudinal processes embedded in different spheres of life.[2] The *multidimensionality of the life course* (Mayer, 2004), also named the principle of the *interdependence between life domains*

[2] Within life course sociology, two closely related traditions can be delineated. Whereas the perspective around the US-American Elder (1994) was primarily interested in the interaction of psychological dispositions, historically changing contexts, and socially constructed life courses, the European variant around Mayer (2004; 2005) mainly focused on how welfare states shape life course patterns. I draw on both traditions in this dissertation.

(Bernardi et al., 2019), argues that individual behaviour in one life domain (e.g., employment) is interrelated with resources in other domains (e.g., wealth).

As the self-accumulation of wealth is a long-term process that occurs not only embedded in the work but also in the couple context, this dissertation further builds on the life course framework's principle of *linked lives* (Mayer, 2004) or the *multilevel interdependence of the life course* (Bernardi et al., 2019). This interdependence describes that individual behaviour over the life course, e.g., in employment, is embedded in and shaped by the network of shared relationships, such as the partnership.

Following from multidimensional and multilevel interdependencies, the *time-related interdependence of the life course* (Bernardi et al., 2019) states that wealth acquired throughout employment in interplay with the partner is revealed in individuals' economic situations later in life. A simplified approach to understand the outcomes of self-accumulated wealth constitutes the *life cycle hypothesis* (Modigliani & Brumberg, 1954). It models an increasing individual saving behaviour throughout working life that reaches its peak at the end of the career. At retirement, individuals start dissaving their wealth after the loss of labour income to maintain their consumption levels in later life.[3] The wealth outcomes of prior employment biographies should therefore become present at late career and early retirement stages. To examine how individuals' career paths shape personal wealth, I thus consider wealth outcomes of individuals in late career stages and at retirement in all three empirical chapters of this dissertation.

2.2 Wealth accumulation within couples

Wealth can be accumulated in multiple ways. Individuals can build on their employment to self-accumulate wealth by saving or investing surplus income, i.e., after-tax net income that has not been used for consumption (Davies & Shorrocks, 2000). In addition, employment-related benefits

[3] The classical life cycle model is commonly criticised for its underlying assumption of perfectly informed and rational actors who do not face uncertainty in their earnings or their time of death. The only motivation for saving is seen in provision for old age, while other motives, particularly bequests, are neglected. Although the high rate of wealth decumulation in retirement suggested by the life cycle model is not empirically observed (e.g., Blundell et al., 2016), wealth holdings tend to follow an inverted U-shaped form over the life course.

that supplement income shape the accumulation of assets – either by contributing to income directly or indirectly, for instance by reducing taxes. Common employment-related benefits include voluntary retirement plans, stock options, life insurance, building loan contracts, and performance-related bonus payments (Chang, 2010, p. 41). Besides self-accumulating wealth, individuals can also accrue wealth by receiving *inheritances*, i.e., wealth transfers after death, or *inter vivos* transfers, i.e., wealth transfers between the living.

In general, wealth grows exponentially through the mechanism of compound interest, for instance by reinvesting capital gains from saving accounts. Other types of wealth, such as rents or capital gains from housing, can likewise generate income. Whereas investments in risky assets are characterised by insecurity about future values due to price fluctuations, they provide higher average returns through natural value increases than low-risk assets, such as savings. Wealth can either be partly or completely decumulated or liquefied to generate income, for instance by disbursing premiums from life insurances. Although wealth accumulation patterns are considerably guided by institutional arrangements (Pfeffer & Waitkus, 2021), in particular normative expectations associated with marriage and gender, individuals can freely decide if and in which asset types they invest – be it in primary housing, savings, or jewellery. Whereas some asset types, such as pension wealth, can only be held in one person's name, other assets, such as housing or savings, can be held jointly together with other persons.

The partnership plays a fundamental role for wealth accumulation, as individuals hold large parts of their assets in joint names together with the partner (Kan & Laurie, 2014). Beyond joint investments, also the presence of the partner, particularly within marriage, shapes financial behaviour (Dew, 2016, p. 282). Marriage expresses institutionalised and public commitment and entails mutual trust that promotes long-term joint investments, thus mitigating investment risks while enabling larger investments. Beyond joint wealth holdings, the partner might also shape individuals' economic situations via income or wealth transfers, as I will describe next.

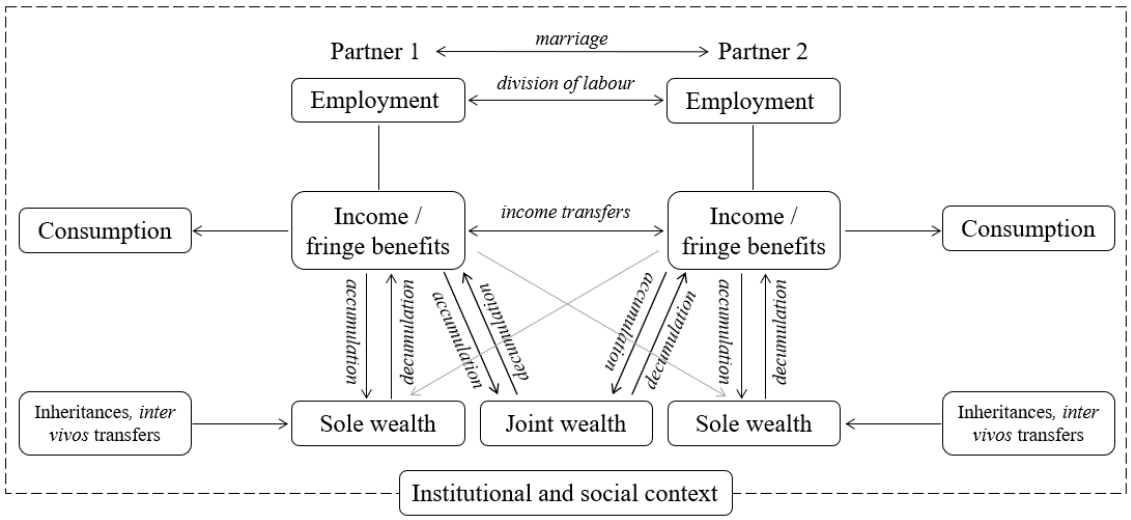
Based on joint wealth holdings and within-couple wealth transfers, I identify three pathways through which partners might mutually shape their personal wealth accumulation processes.

These pathways describe how individuals exchange economic resources within couples (see Figure 1). Whereas these processes principally apply to all couple types, I expect them to be particularly strong for married couples because of their stronger economic togetherness and more stable partnerships compared with cohabiting couples (Dew, 2016). First, individuals might accumulate wealth through income transfers from their partners. Income research has shown that couples frequently transfer or pool at least some share of their incomes (Bisdee et al., 2013; Lott, 2017). Instead of spending money for consumption, individuals might also use this transferred income to accumulate wealth by partially or wholly saving or investing the received money.

Second, individuals might influence their partner's wealth accumulation processes via investments in assets from the partner (solid grey lines in Figure 1). That is, individuals might invest money in their partners' wealth portfolios by conducting investments directly in these assets, for instance by depositing money in their savings account or taking over their mortgage payments. Unlike income transfers that can be either used for consumption or wealth accumulation, these transfers therefore directly affect wealth holdings.

Third, individuals can also use investments in joint wealth holdings to redistribute money within the couple. If both partners invest the same amount of money in their equally held asset, their investments amount to their levels of wealth. However, if one partner's investments in the joint pot exceed those of the other, the partner gains wealth indirectly. Consequently, one partner's investment in the jointly held asset becomes the wealth of both partners. For instance, if one partner takes over the mortgage payments for the jointly and equally owned house, the other receives half of the invested money and thus also accumulates wealth.

Figure 1 Model of personal wealth accumulation within couples



Source: Own illustration.

2.3 Personal wealth accumulation within couples over the life course

The following sections embed the model of personal wealth accumulation within couples presented in Figure 1 in the life course framework to explain how marriage and employment biographies shape gendered wealth outcomes in later life. In this dissertation, I focus on self-accumulated wealth and economic redistribution processes between married partners over the life course. Note that I do not explicitly take into account intergenerational wealth transfers in the theoretical framework because employment has been shown to be particularly important in explaining gender differences in wealth (Gornick & Sierminska, 2021; Sierminska et al., 2018). However, because intergenerational transfers comprise around 50 percent of all wealth holdings in Germany and 60 percent in Britain in 2010 (Alvaredo et al., 2017), I control for inheritances in all three studies of this dissertation.

2.3.1 Marriage and wealth accumulation

Three characteristics of marital biographies shape personal wealth outcomes in later life: the length, stability, and timing of marriage. First, the spouse's influence on individuals' wealth accumulation increases with the *length of marriage*. Throughout marriage, spouses tend to grow together economically, and joint money management becomes more likely (Hiekel et al., 2014). Married individuals additionally benefit from more profitable joint investments, eased access to credit, and economies of scale that result in increased compound interest effects over time.

Previous research has found evidence for a marital wealth premium for both female and male spouses that increases throughout marriage (Kapelle & Lersch, 2020; Lersch, 2017b).

Second, the *stability of marriage* is fundamental to maintain the economic benefits provided by marriage. Particularly expectations about the stability of marriage in the future might shape spouses' willingness to invest at an early stage of marriage. Large-scale investments, such as housing, are not only likely to be accumulated over many years but are also associated with high initial costs (e.g., tax burdens, credit costs, or incidental costs). Large-scale joint investment efforts might thus be made under the assumption of a stable marriage and high mutual trust. The event of divorce however disrupts joint investments and terminates the economic benefits associated with marriage. Consequently, individuals are shown to experience substantial and lasting wealth declines over the marital dissolution process that also pertain after remarriage (Kapelle & Baxter, 2021).

Finally, the *timing of marriage* determines personal wealth outcomes in later life. As couples are likely to invest in large assets like housing at earlier ages around family formation (Bayrakdar et al., 2019), early investments might increase wealth outcomes in later life through compound interest effects. Individuals marrying at later stages of life might thus be restricted in their ability to accumulate joint wealth to the same extent as couples marrying earlier in life. Further, pre-marital wealth remains in individual ownership throughout marriage in most contexts, including Germany and Britain. Therefore, the influence of the spouse on individual's wealth outcomes in later life should be relatively small for those who marry late.

2.3.2 Individual's and partner's employment and wealth accumulation

Three characteristics of employment biographies shape personal wealth outcomes in later life: the length, stability, and timing of employment. At the individual level, first, the *length in a certain employment status* likely shapes wealth accumulation processes. Long-term full-time employees might benefit from increased access to wealth-enhancing resources compared with employees with reduced working hours (Halpern-Manners et al., 2015; Ponomarenko, 2017). Second, due to the long-term nature of wealth that often requires regular contributions to investments, *career*

stability is crucial to build up wealth. Previous research has shown that job loss is negatively associated with household wealth in the long term (Kuhn & Ploj, 2020; Ozturk & Gallo, 2013). Further, employment instability results in a lower likelihood of homeownership (Fauser & Scheuring, 2021; Gritti & Cutuli, 2021). Third, the *timing of employment disruptions* likely matters. Disruptions at the beginning of the career may be particularly disruptive to wealth accumulation because of cumulative disadvantages in the ability to accumulate wealth that might become present in later life (Fauser & Scheuring, 2021; Gangl, 2006).

Besides individuals' employment, the partner's employment characteristics also shape wealth outcomes in later life. First, with the partner's prolonged periods in employment, individuals might increasingly benefit from financial transfers and joint investments. Their ability to accumulate wealth is however considerably reduced with the increasing length of partners' employment disruptions. Driven by normative and legal obligations to financially care for the partner in times of need, for instance during unemployment, individuals may have to cover the resulting income losses. These obligations should be particularly strong within marriage as institutionalised partnership type paired with respective behaviours and beliefs. During partners' unemployment, individuals likely have to continue previously shared investments and take over maintenance costs of joint property. Second, particularly partners' reoccurring episodes out of labour might constitute additional financial burdens to the couple, as wealth accumulation commonly requires regular payments that cannot be made in unstable employment arrangements. To generate income in the case of partners' career instability, asset disposal and borrowing potentially impair individuals' abilities to accumulate wealth in the long term. Third, partners' early employment disruptions might coincide with phases where large-scale investment decisions are made in the couple. As these investments often require two stable incomes, individuals might be restricted in their access to wealth. Partners' career disruptions at the beginning of the career might prevent the acquisition of joint property, as the couple cannot produce sufficient starting capital that is often required to receive credit and cover transfer tax and purchase costs. Consequently, individuals might be less likely to benefit from profitable joint investments within

partnerships, resulting in reduced compound interest effects over time and lower personal wealth holdings in later life.

2.3.3 The division of labour and gendered wealth accumulation processes

Whereas personal wealth accumulation processes and the role of the partner are principally gender-neutral, institutional and normative influences make these processes gendered. The circumstances do not only shape the division of labour within couples but also the investment patterns of women and men. Individuals are *doing gender* in social interactions, where their behaviour is based on the normative assessment of their gender (West & Zimmerman, 1987). Under the socially accepted conception of gender, women are perceived as the main carer of the family who focuses on unpaid work of childcare and housekeeping, whereas breadwinning is strongly normatively linked to men. Although in light of increasing female employment rates, particularly women within marriage share gender-traditional values (Yodanis & Lauer, 2014).

Gender norms and practices are not only shaped by but also shape institutional regulations (West & Zimmerman, 1987). Female labour market participation is largely guided by the interplay of employment, family, and taxation policies. In many western countries, including Germany and Britain, motherhood and full-time employment are hard to reconcile. Whereas high childcare costs impede mothers' labour market participation in Britain, the limited availability of public childcare is the main driver of their low labour market participation in Germany (Wrohlich, 2011). Consequently, women's employment rates are considerably lower compared with men. Whereas around 67 percent of the female working-age population in Britain and 60 percent in Germany were employed in 2005, men's employment rates were higher at around 71 percent in Britain, respectively 79 percent in Germany (OECD, 2021b). In light of policy-driven normative and economic incentives, women commonly disrupt and reduce their employment after family formation in the long term (Simonson et al., 2011; Struffolino et al., 2020), whereas most men remain regularly employed throughout the career. Thus, female part-time employment rates were considerably higher at around 38 percent compared with under 10 percent of men in Britain and Germany in 2005 (OECD, 2021c). Employment differences likely shape a temporarily or stably

gender-traditional division of paid and unpaid labour throughout the life course that might affect women's and men's wealth accumulation patterns within couples.

Income pooling (i.e., combining earnings into a pool that both partners can access) is more likely among specialised couples with a gender-traditional division of labour for two interrelated reasons. First, an unequal division of labour is commonly built on agreements to financially protect or compensate the female partner focusing on unpaid work (Amuedo-Dorantes et al., 2010). Second, pooling money expresses financial caring and togetherness and signals mutual trust, which is particularly important in couples with a traditional gender ideology (Burgoyne, 1990). In dual earner couples, in contrast, women commonly aim to maintain their financial independence by keeping two separate purses (Lott, 2017). Hence, individualised money management systems often occur in couples with equal earnings and gender-egalitarian beliefs (Çineli, 2020).

These considerations might also apply to wealth. In couples with gender-traditional arrangements, joint investments might be used to economically compensate the main carer and express high commitment and togetherness. In couples with a gender-egalitarian division of labour, sole investments might be preferred to express financial independence and autonomy in addition to potential joint investments. Couples that share a larger proportion of their resources build a stronger economic unit, so partners in these couples are more economically dependent on each other. In couples with a gender-traditional division of labour, the female main carer is however particularly at risk of being more economically dependent on the male partner under these joint wealth arrangements.

2.4 Life course transitions and institutional structures

In the following section, I first outline the role of the context in the life course framework. Second, I introduce the three country cases of this dissertation, Western Germany, Eastern Germany, and Britain. Lastly, I identify three contextual factors that considerably shape the association between both partners' employment and personal wealth in later life.

2.4.1 Contextual underpinnings of the life course framework

Individuals are embedded in institutional and social structures that affect the inter-individual stratification within a society and the intra-individual development of life paths (Bernardi et al., 2019; Elder, 1994; Möhring, 2016). Hence, the composition and development of life course transitions are shaped by structural incentives and restrictions (Mayer, 2005). Beyond influences on the meso level through the partnership, particularly the marriage, it is therefore crucial to consider macro-level influences to understand personal wealth outcomes in later life.

In most western countries, careers follow a similar sequencing structured around paid work (Komp-Leukkunen, 2019). The tripartite life-course model describes the institutionalisation of life paths with the temporal order of education, employment, and retirement (Kohli, 2007). The beginning and end of career paths are thus defined by the prevalent educational and pension systems, whereas the labour market system shapes the fluctuation in and out of employment.

Career paths are accompanied and shaped by historically changing institutional and normative structures. For instance, the patterns of individuals' family and employment biographies vary across institutional settings, such as Eastern and Western Germany (Simonson et al., 2011; Struffolino et al., 2016). Understanding the resulting wealth outcomes thus requires a detailed examination of the mix of policies and economic circumstances at the time of wealth accumulation across contexts. A grouped typology of countries, for example into types of welfare states or life course regimes, might however mask country-specific historical changes (Mayer, 2005). Thus, a comparison between specific country cases should be preferred over analyses grouping a range of countries. Further, it might result in an oversimplification of how the interplay of different policies and institutions shape life course outcomes in specific countries. In this dissertation, I thus conduct cross-national comparisons based on the country contexts of Western Germany, Eastern Germany, and Britain. However, it lies beyond the scope of this dissertation to identify how particular institutions shape wealth outcomes in later life.

2.4.2 Overview of Western Germany, Eastern Germany, and Britain

Western Germany, Eastern Germany, and Britain represent historically distinct contexts that shape women's and men's wealth accumulation differently. I differentiate between the historically divided Western and Eastern part of Germany – i.e., the social market economic Federal Republic of Germany (FRG) and the socialist German Democratic Republic (GDR) that existed between 1961 and 1990. In the following, I discuss context differences in wealth, employment, and resulting consequences for women's and men's wealth accumulation.

Wealth holdings differ remarkably across the three country contexts. In 2011, the average household net wealth was highest at around EUR 290,000 in Britain compared with EUR 195,000 in united Germany (OECD, 2021d). Under the socialist regime of the GDR, the ability to accumulate wealth and the transmission of property were largely restricted (Grabka & Halbmeier, 2019). Consequently, wealth is still considerably lower in Eastern compared with Western Germany decades after reunification. In 2017, the wealth gap between Eastern and Western Germany was largest for the elderly aged 55 and older, whose average personal net worth was around EUR 80,000 in Eastern compared with EUR 205,000 in Western Germany. The wealth gap was about halved for younger birth cohorts born in the 1980s who did not accumulate wealth in the socialist GDR.

The three contexts also differ with regard to the employment biographies of women and men. Whereas Western Germany and Britain are historically strong male breadwinner systems, Eastern Germany imposed almost total full employment for women and men, driven by the political goal of regime stabilisation. Although female employment rates increased in Western Germany and Britain throughout the second half of the 20th century, women's labour market participation has remained lower compared with men and women in the GDR (Trappe et al., 2015). In 1990, the female employment rate was around 41 percent compared with 50 percent in Britain (OECD, 2021a) and 73 percent in the GDR (Heisig & Zierow, 2019). In 2017, female employment rates increased to around 55 percent in (united) Germany and Britain. However, male employment rates have remained considerably higher at over 70 percent in Western Germany and Britain over time (OECD, 2021a).

As a consequence of the GDR's full employment policies, women's and men's employment biographies are characterised by continuous full-time employment. After maternal leave, mothers usually returned to full-time employment, which was enabled by widespread public childcare facilities (Heisig & Zierow, 2019). However, political instability around reunification, mass unemployment, and incentives for early retirement increased the de-institutionalisation of employment biographies for both genders in Eastern Germany (Bucher-Koenen & Lamla-Dietrich, 2018). In Western Germany and Britain, employment biographies were characterised by low unemployment embedded in stable economic environments throughout the second half of the 20th century. Whereas men's life courses have been highly institutionalised and structured around paid work, women's careers have been less standardised and structured around family formation over time (Komp-Leukkunen, 2019). After childbirth, mothers tend to reduce employment in the long term, with homemaking being more prevalent in Western Germany and part-time employment in Britain. Particularly the low availability in Western Germany and the high costs of public childcare in Britain impair mothers' ability to engage in employment.

As a result, women and men within couples might differ in their ways of wealth accumulation across contexts. In the socialist regime of the GDR, private property and financial investments were not promoted but collectivised, resulting in a generally restricted ability to accumulate wealth irrespective of gender (Frick & Grabka, 2009). In the gender-traditional contexts of Western Germany and Britain, however, women might face lower access to wealth through employment than men. To accumulate wealth, women's wealth portfolios might therefore largely consist of joint wealth holdings, particularly housing assets as most couples' largest joint investment (Joseph & Rowlingson, 2012). Especially in Britain, where homeownership rates are higher than in Germany (Toussaint & Elsinga, 2009), joint homeownership might therefore constitute an important dimension of women's wealth accumulation.

3 Research design

The following section provides an overview of the research design of this dissertation. After presenting the underlying analytical approach of the three empirical chapters, I introduce the survey data sets, SOEP and UKHLS, used in this dissertation.

3.1 Analytical approach

Researchers studying biographical social processes and their consequences commonly follow two cultures of data analysis (Aisenbrey & Fasang, 2010; Breiman, 2001; Piccarreta & Studer, 2019). On the one hand, the *data modelling culture* assumes that data result from an underlying stochastic process. It comprises quantitative methods, such as event history analysis, latent growth, or panel regression models. On the other hand, the *culture of algorithmic exploratory data analysis* does not make assumptions about the processes that generate data. Exploratory approaches like sequence analysis instead aim to reveal patterns in the data.

This dissertation draws on both cultures. In the first step, I approach biography data using sequence analysis without an underlying distributional assumption. Considering holistic biographical patterns, sequence analysis focuses on the core concepts of life course research, namely the underlying temporal processes of social reality (Abbott, 2001, p. 183). Sequence analysis exploratively detects biographical patterns in the data by defining a metric of similarity between biographies. In this dissertation, I focus on employment trajectories that cover the yearly employment status (e.g., full-time employed, part-time employed, in education; Chapters 2, 3, and 4) in interplay with the yearly marital status (e.g., married, unmarried; Chapters 3 and 4). In the second step, I apply cluster analysis to group sequences based on their similarity into internally homogeneous and externally heterogeneous clusters (Aisenbrey & Fasang, 2010). Both steps reduce the complexity of biographies and bring them into a format that can be analysed with regression-based methods. In the final step, I examine how the previously identified biographical patterns are associated with wealth outcomes in later life utilising regression analysis.

The integration of an explorative sequence approach with regression methods combines several advantages. Sequence analysis conceptualises biographical patterns as a series of temporally ordered categorical states detached from expectations about the relevance of certain life course characteristics. Thus, sequence analysis is not constrained by previously anticipated expectations about the relevance of specific life course events. However, sequence analysis does not allow testing the association between biographies and metric wealth outcomes. I therefore utilise regression-based analyses with biographical clusters as predicting variables to test my predefined theoretical expectations. Further, regression analyses are beneficial as they enable controlling for a range of alternative predictors of wealth in later life. I thus follow the combination of both approaches to answer the research questions of this dissertation.

3.2 Data

The gendered life course approach of this dissertation places high demands on the underlying data sources. First, examining personal wealth requires wealth measures at the individual level. However, many surveys with a focus on social and economic research traditionally measure wealth as a characteristic of the household (examples are the *Survey of Income and Program Participation* (SIPP) from the United States or the *Survey of Health, Ageing and Retirement in Europe* (SHARE)). Second, it requires long-term biographical information on retrospective life course paths of the older population. Data thus have to exceed the working-age population and cover either the entire population or the elderly. Third, it demands a dyadic data structure at the couple level, which surveys both partners to assess the allocation of wealth within the household adequately.

With the German Socio-Economic Panel Study (SOEP; Goebel et al., 2019) and Understanding Society–The UK Household Longitudinal Study (UKHLS; University of Essex, 2019), two data sources meet these high requirements. Both are longitudinal household panel surveys that include representative samples of the entire household population of Germany and Britain. The SOEP started its annual data collection in 1984 in Western Germany and included Eastern Germany from 1990 onwards. The UKHLS started its annual survey in 1991 with its predecessor, the British

Household Panel Survey (BHPS), which was integrated into the UKHLS in 2010. Both surveys are centred around topics of social and economic research at the individual and the household level. They enable dyadic analyses at the couple level by interviewing every household member. Further, they provide comprehensively measured data on personal wealth (four waves in the SOEP: 2002, 2007, 2012, 2017; two waves in the UKHLS: wave 4 (2012-2014), wave 8 (2016-2018) combined with a rich set of retrospective information on individuals' and their partners' employment and marriage biographies.

4 Summaries of the three studies

In the following, I summarise the three studies of this dissertation and their central findings. This section builds on Table 1, which provides an overview of the designs of the three studies and embeds them in the underlying theoretical framework of personal wealth accumulation within couples.

4.1 Study I

Study I *Gendered employment trajectories and individual wealth at older ages in Eastern and Western Germany* is co-authored with Philipp M. Lersch and published in *Advances in Life Course Research* (2021, DOI:10.1016/j.alcr.2020.100374). We study the association between women's and men's employment trajectories and personal wealth in later life. Using retrospective employment and prospective wealth data from the German SOEP (2002, 2007, 2012, and 2017), we employ sequence and cluster analyses to group individuals' employment trajectories between from age 20 to 55. We include the clusters as predictors in multivariable OLS regression models to examine the association between employment trajectories and personal, housing, and non-housing net wealth in Eastern and Western Germany in later life. Germany is a particularly interesting case for analysing the consequences of different career patterns for wealth inequality due to the strongly gendered labour market, with variation between the former East and West. The study sample consists of retired women and men aged 56 and older living in East or West Germany in 1989.

Focusing on the outcomes of individuals' wealth accumulation in later life, this study aims to provide a fundamental understanding of individual-level processes before turning towards the couple level in the following empirical chapters. We implicitly take into account the partnership through the consideration of joint investments in homeownership. Whereas recurring and long-term deviations from continuous full-time employment result in lower levels of personal net wealth for men, the association between employment and personal net wealth is weaker for women, who have lower wealth levels than men. We further find lower levels of personal wealth and a weaker association with employment in Eastern than Western Germany. Surprisingly, women with low labour market attachment in Western but not Eastern Germany experience a housing wealth advantage compared with their full-time employed counterparts. This indicates that female main carers and secondary earners in the gender-traditional west are economically compensated within traditional male breadwinner arrangements. However, the worth of homeownership cannot compensate women's the economic disadvantage of low labour market participation, which increases their risk of economic dependency on the partner, as they cannot easily liquefy the jointly owned housing in need.

4.2 Study II

Study II *In sole or joint names? The role of employment and marriage biographies for married women's asset ownership in later life* is single-authored and currently revised and resubmitted. In this study, I consider the distribution and level of women's solely and jointly held assets within married couples. Employing multichannel sequence and cluster analyses based on retrospective employment and prospective wealth data from the SOEP for Western Germany (2002, 2007, 2012, and 2017), I examine how women's employment and marriage biographies from age 18 to 49 are associated with their sole and joint asset holdings in later life – both in relation to their male spouses and in absolute terms. The analytical sample includes 3,415 female spouses aged 50 years and older.

Whereas the other studies of this dissertation focus on the amount of personal wealth and differentiate between wealth components, this study examines the way spouses hold wealth. I find

that married couples build strong integrated economic units, as they own most of their assets jointly – however, with great variation across couples. Particularly late marriage and remarriage individualise the wealth distribution within couples. Female full-timers benefit from broad access to sole and joint wealth within marriage. In contrast, remarried and late married women cannot compensate their reduced joint wealth holdings with increased investments in sole wealth, leaving them with lower levels of wealth than women in stable or early marriages. In return, long-time female homemakers have less individualised wealth portfolios, indicating that their actual economic disadvantage might be underestimated under the exclusive consideration of absolute wealth measures.

4.3 Study III

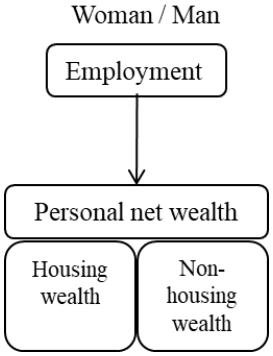
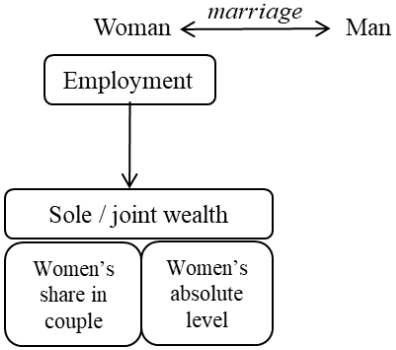
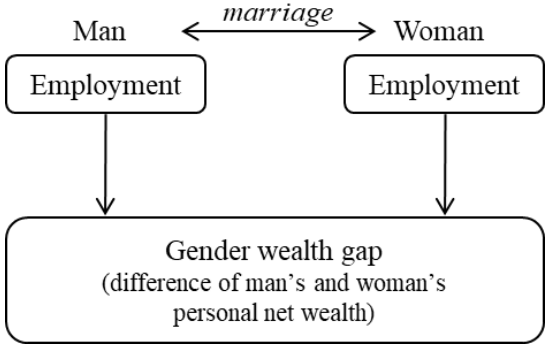
Study III *Dividing labor, sharing assets? Dyadic employment biographies and within-couple wealth inequality in Britain and Western Germany* is co-authored with Davide Gritti and published in *Journal of Marriage and Family* (2021, DOI:10.1111/jomf.12811).[4] In this study, we examine the association of spouses' dyadic work-marriage biographies and the within-couple gender wealth gap in later life. We use retrospective biographies from the German SOEP (2017) and the British UKHLS (2016-2018). By utilising sequence and cluster analyses, we group couples' dyadic employment biographies from ages 20 to 55 and include them in multivariable OLS regression models to predict the level of within-couple wealth inequality. The sample is restricted to couples in their first marriage with women aged 55 and older and with both spouses born in Britain or Western Germany.

This study extends the other studies of this dissertation by following a dyadic approach that examines the wealth gap between spouses instead of their personal wealth holdings. We find that a similar division of labour course can result in different levels of within-couple inequality across contexts. The level of wealth inequality is considerably smaller in Britain than Western Germany, which seems primarily driven by Britain's larger homeownership rates. Whereas the size and

[4] Due to word limitations of the journal, the title of the published version is shortened to *Dyadic employment biographies and within-couple wealth inequality in Britain and Western Germany.*

variation of the wealth gap are small among British couples, Western German male breadwinner couples showed high levels of wealth inequality. Women's access to labour earnings and employment-related benefits seems central to reducing gender wealth disparities in Western Germany. Against the widespread assumption of marital sharing, our results further show that husbands might not fully share their wealth with their wives in male breadwinner arrangements.

Table 1 Overview of the studies of this dissertation

	Study I: Gendered employment trajectories and individual wealth at older ages in Eastern and Western Germany	**Study II:** In sole or joint names? The role of employment and marriage biographies for married women's asset ownership in later life	**Study III:** Dividing labor, sharing assets? Dyadic employment biographies and within-couple wealth inequality in Britain and Western Germany
Study design			
Analytical approach	Single-channel sequence and cluster analysis, OLS regressions	Multichannel sequence and cluster analysis, fractional logit models and OLS regressions	Dyadic sequence and cluster analysis, OLS regressions
Level of analysis	Individual	Couple	Couple
Unit of analysis	Individuals (women and men)	Female spouse	Female spouse[5]
Dependent variable(s)	IHS-transformed personal net wealth, housing wealth, non-housing wealth	Women's shares and absolute levels (IHS-transformed) of sole and joint wealth	Rank-transformed gender wealth gap
Main independent variable	Employment clusters	Employment-marriage clusters	Dyadic employment clusters

[5] We derive dyadic employment clusters from the female partners' biographies, given that dyadic employment biographies are identical for married individuals by construction. The consideration of both partners in the analyses would thus have created multicollinearity issues.

Country context	Western and Eastern Germany	Western Germany	Western Germany and Britain
Authorship	Co-authored with Philipp M. Lersch	Single authorship	Co-authored with Davide Gritti
Publication status	Published in *Advances in Life Course Research* (2021, DOI:10.1016/j.alcr.2020.100374)	Revised and resubmitted	Published in *Journal of Marriage and Family* (2021, DOI:10.1111/jomf.12811)

5 Conclusion

This section concludes this dissertation and embeds it in the broader research on wealth and couples. First, I summarise the key results of this dissertation. Second, I discuss the contributions of this dissertation to current strands of literature before deriving general implications for theory, future research, and policy. Afterwards, I continue with the limitations of this dissertation before outlining future research directions.

5.1 Key results

This dissertation reveals five key findings on the gendered interplay of individuals, their partners, and the institutional contexts in shaping personal wealth outcomes within married couples in later life.

I. The interplay of employment and marriage over the life course shapes personal wealth holdings in later life.

The results presented in Chapters 2, 3, and 4 show that the long reach of employment shapes personal wealth holdings in later life. As wealth accumulation is a long-term process, I demonstrate in this dissertation that a holistic life course approach is required to understand the economic outcomes of a lifetime of wealth accumulation. Whereas prior research has mainly utilised short-term indicators or summary measures to explain wealth outcomes (e.g., Halpern-Manners et al., 2015; Sierminska et al., 2018), I show that the duration in certain employment states paired with the stability of careers and the timing of disruptions are crucial for wealth accumulation. A high and stable labour market participation promotes the accumulation of solely held assets, whereas particularly long-term employment disruptions and early retirement reduce personal wealth in later life. Consequently, individuals with a lower attachment to the labour market are largely excluded from access to sole wealth, which mostly includes financial assets and employment-related benefits, such as employer-provided stock options.

Furthermore, individuals with similar career paths and income levels may end up with different wealth holdings in later life, depending on their marriage biographies. This is largely determined

by varying investments in joint assets, which considerably shape both partners' wealth accumulation processes within marriage. Extending prior research revealing a negative association between divorce and personal wealth (e.g., Kapelle & Baxter, 2021), I find in Chapter 3 that wealth disadvantages are largely driven by the loss of joint wealth holdings throughout the divorce process and the restricted access to joint investments in higher-order marriages in advanced life stages.

II. *Men accumulate personal wealth closely linked to their labour market participation, whereas women strongly depend on their partners' economic resources.*

To understand gendered wealth outcomes in later life, this dissertation complements prior research focusing on the gender wealth gap as outcome measure (e.g., Grabka et al., 2015) by additionally taking a gendered perspective on the *processes* of wealth accumulation. I extend the widely used operationalisation of personal net wealth as the sum of all assets minus liabilities (e.g., Lersch, 2017b) by additionally considering the type of wealth (housing or financial wealth; Chapter 2) and the ways individuals within couples hold wealth (solely or jointly; Chapter 3) to reveal gender differences in wealth accumulation.

In Chapters 2 and 4, I show that men accumulate wealth more strongly tied to employment than women. This finding likely corresponds to gendered patterns of labour market participation, with men benefitting from broad access to wealth due to their stronger attachment to the labour market throughout the career. The economic resources from employment are central to men's wealth accumulation. Men also earn higher average wages and concentrate in high-wage sectors and occupational fields, where employment-related benefits exceed those of women. Even with similar employment biographies, men therefore gain higher levels of personal wealth in later life than women. Consequently, deviations from careers characterised by continuous full-time employment are particularly disadvantageous for men's wealth holdings.

Chapters 2, 3, and 4 of this dissertation reveal that women accumulate wealth more closely linked to the couple context than men. Beyond income transfers identified by prior research on money management (e.g., Bisdee et al., 2013), I identify joint investments as another central way of redistributing money within couples – particularly from the male to the female partner. As

partners often hold assets jointly and thus share the legal ownership, one's financial contribution constitutes a half-sized investment in both partners' wealth portfolios. In case of unequal financial contributions, women are thus partly compensated for their economic disadvantages resulting from gendered labour market differences. Findings from Chapter 2 further indicate that women's wealth holdings are reduced if their partners cannot contribute economically due to a low labour force attachment. Hence, the findings of this dissertation contribute to research on the marital wealth premium considering marriage as wealth-enhancing (e.g., Kapelle & Lersch, 2020; Lersch, 2017b) by showing that marriage can also be detrimental for women's wealth accumulation if spousal resources remain absent.

III. A gender-traditional division of labour and stable marriage throughout working life promote investments in joint wealth within couples.

This dissertation shows that the distribution of wealth differs within couples in later life, depending on the interplay of both partners' employment and marriage biographies over the life course. Chapter 4 finds that women in gender-traditional male breadwinner couples have accrued less wealth than women in dual earner couples in later life. However, Chapters 2 and 3 indicate that joint wealth is proportionally greatest in couples with a gender-traditional division of labour. The joint wealth advantage is largely driven by large-scale investments in jointly held housing wealth in male breadwinner couples, which is the predominant wealth accumulation strategy among female secondary earners and main carers.

Further, I find stable and early married couples to build strong economic units holding most of their property jointly (Chapter 3). Whereas a high female labour market attachment promotes women's access to sole wealth, female employment does not reduce economic jointness within marriage. Regarding wealth, marriage thus remains broadly characterised by great economic togetherness. This stands in contrast to income, where studies show that couples' money management becomes more individualised with a strong female labour market participation (e.g., Çineli, 2020; Lott, 2017).

IV. A high female labour market participation is required to reduce within-couple gender wealth inequality.

Extending prior wealth research on the determinants of the within-couple gender wealth gap (e.g., Grabka et al., 2015; Sierminska et al., 2018), Chapter 4 shows that wealth inequality varies in older married couples depending on both partners' employment constellations throughout working life. Within-couple wealth inequality in later life is smallest in dual earner couples and largest in male breadwinner couples with both short and long-term female homemakers. Although homemaking women are found to strongly benefit from their partners' increased investments in joint property, their access to solely held assets remains restricted over the life course. Thus, although marriage promotes the sharing of large parts of wealth and partially compensates women's economic disadvantages resulting from a gender-traditional division of labour, all empirical chapters of this dissertation find that a high female labour market participation is crucial to reduce the within-couple gender wealth gap.

V. Similar employment-marriage biographies can result in different personal wealth holdings in later life depending on the institutional context.

This dissertation finds evidence that the context plays a fundamental role in shaping the outcomes of individuals' wealth accumulation processes within couples. Extending prior research on wealth determinants across countries (e.g., Semyonov & Lewin-Epstein, 2013), I show in Chapters 2, 3, and 4, that an integrated individual and couple-level perspective is required to examine how the interplay of institutional and social structures shapes personal wealth accumulation processes. Housing and financial markets play a central role in providing access to wealth for both genders. Particularly a strong housing market reduces – although it does not eliminate – gender wealth inequality by enabling women's accumulation of wealth via joint investments. For men, a stable economic climate on the labour market and wealth-enhancing financial systems are crucial to accumulate wealth.

Consequently, the role of the male spouse in shaping women's wealth outcomes in later life varies across contexts, as shown in all three empirical chapters of this dissertation. Being unmarried is particularly disadvantageous for women's ability to accumulate wealth under the traditional welfare policies of Germany, where access to sole homeownership is highly restricted. Also, having a spouse who cannot provide financial support reduces women's wealth holdings in later

life in the gender-traditional context of Western Germany. In contrast, being unmarried throughout working life seems beneficial for women in Britain, where the housing market is highly accessible and individual investments are encouraged.

5.2 Implications

This section elaborates implications for future research on personal wealth within couples. It further derives implications for theory, research, and policy based on my results for Western and Eastern Germany and Britain, the contexts under study of the three empirical chapters. It concludes with a discussion of the limitations of this dissertation.

5.2.1 Contributions to the literature

In this dissertation, I contribute to three strands of literature. First, I develop a framework of individuals' wealth accumulation processes within couples that extends literature on the economic consequences of couple dynamics. Prior research has examined how couple dynamics, such as joint employment biographies (Möhring & Weiland, 2021) or parenthood (Musick et al., 2020), shape partners' subsequent incomes. Research on the intersection of couple dynamics and wealth is sparse and has mostly focused on the consequences of family-related transitions, such as marriage (Kapelle & Lersch, 2020). This dissertation contributes to the current state of research by linking couple dynamics to both partners' personal wealth outcomes in later life. Thereby, it not only examines the largely unconsidered role of individual employment for personal wealth outcomes but also integrates it within the couple context. A more thorough understanding of the determinants of personal wealth is crucial for future research assessing the relevance of within-couple gender wealth disparities.

Second, this dissertation contributes to literature building on the life course framework (Bernardi et al., 2019; Elder, 1994; Mayer, 2009) by focusing on wealth accumulation as a largely unconsidered life course process. I show that personal wealth in later life is a long-term outcome of the interplay of different life course characteristics. Wealth accumulation processes are shaped by employment and marriage, gender, and the institutional context. Therefore, similar biographical patterns do not necessarily result in equal wealth outcomes in later life but

additionally depend on interrelated micro-, meso-, and macro-level influences. My findings thus demonstrate that similar wealth determinants are not equally important for all individuals. For research examining life course outcomes beyond wealth, such as health or retirement entry, this dissertation therefore suggests considering multiple dimensions of life course processes to better understand the respective outcome.

Third, I contribute to sociological research on the predictors of economic inequality in old age. Whereas prior research has focused on the acquisition of pension entitlements throughout the career (Fasang et al., 2013; Madero-Cabib & Fasang, 2016; Möhring & Weiland, 2021), this dissertation draws attention to wealth as a largely unconsidered dimension of retirees' economic well-being. Although both pension entitlements and wealth are acquired in the long term throughout working life, they cover distinct dimensions of individuals' economic situations. As pension income alone is often not sufficient to maintain the living standard at retirement, this dissertation shows that wealth is highly important for the economic well-being in old age. For research assessing economic inequality among the elderly, it is therefore important to additionally consider personal wealth holdings beyond pension income.

5.2.2 Implications of the findings

In this section, I derive five implications of this dissertation for research, theory, and policy. First, my dissertation shows that it is central to research examining the determinants of personal wealth to consider not only employment characteristics of individuals themselves but also of their partners. Particularly women's wealth accumulation processes are shaped by the male partner's labour market attachment and associated economic resources. Whereas prior research has mostly considered marriage as beneficial economic resource (Kapelle & Lersch, 2020; Lersch, 2017b), my findings demonstrate that not only the absence of a spouse but also spouses themselves can constitute an economic burden in case of unstable career paths. Especially women's personal wealth is impaired by employment disruptions of the male spouse, because investments in joint wealth holdings as central way of women's wealth accumulation are reduced. Future research examining the determinants of wealth should thus not only consider the relationship status but also thoroughly consider the partner's resources and characteristics.

Second, research examining the consequences of within-couple wealth inequality, e.g., for life satisfaction or union dissolution, might not adequately capture individuals' economic situations within couples under the exclusive consideration of individual-level wealth measures. Besides levels of personal wealth holdings (commonly measured as the sum of individuals' own plus their proportional ownership of jointly owned assets), also the wealth components and the way partners hold and distribute assets constitute important dimensions of within-couple wealth inequality. For instance, absolute wealth differences might be low among joint homeowners, even if one partner's wealth is fully concentrated in this property and cannot be accessed independently. Future studies examining the consequences of gender wealth inequality might therefore underestimate the importance of wealth disparities if they exclusively compare both partners' personal wealth levels.

Third, my findings have implications for theories on intra-household inequality (for an overview, see Himmelweit et al., 2013). In line with a growing body of wealth research (Kan & Laurie, 2014; Lersch, 2017a), I find evidence against the *unitary household model* that assumes full wealth sharing within marriage (Becker, 1981). However, this does not imply that economic behaviour within marriage is highly individualised. My findings rather indicate that spouses predominantly act as interdependent and integrated economic units (Yodanis & Lauer, 2014) – although to varying degrees. Within-couple wealth disparities might be the result of both cooperative and noncooperative behaviour, as theorised under the *collective model of the household* (Chiappori, 1988; Katz, 1997). Unlike income, some asset types cannot be redistributed within couples, which naturally restricts the possible extent for cooperation. Joint investments, in return, are particularly effective for economic cooperation, as they not only allow large investments within couples but both owners are also legally secured through property rights. In sum, individuals seem to be driven by efforts of cooperation within marriage, which is however limited through the characteristics of distinct wealth components.

Fourth, this dissertation has shown that labour market participation is central to women's wealth accumulation in Germany and Britain. Policies should therefore target women's access to self-accumulated wealth by incentivising the uptake of employment (Gornick & Sierminska, 2021). Progressive policies should improve the reconciliation of work and family through broad access

to childcare for children of all age groups. Further, the gender-equal use of paid leave should be incentivised, for instance following the Scandinavian model that reserves parental leave periods for fathers and mothers (Duvander & Johansson, 2019). Whereas married couples in Britain can only transfer some personal allowances to their spouse to save taxes, *full income splitting* additionally prevents married women from a labour market participation in Germany by providing tax incentives for married couples with a gender-traditional division of labour (Bach et al., 2013). To bolster women's employment and reduce the tax burden of the secondary earner within married couples, the German tax system should be reformed. *Real splitting* has evolved as a promising alternative, which maintains splitting advantages while reducing the wives' tax burden (Bach et al., 2020). Consequently, real splitting might enable wives' uptake of employment and to access wealth.

Fifth, under Germany's and Britain's default matrimonial property regimes, the mostly female secondary earners are economically disadvantaged within marriage. Different from the *community of acquisitions* ("Errungenschaftsgemeinschaft"), the default property regime in most European countries, spouses do not have access to each other's wealth by default in Germany and Britain. Under the German *community of accrued gains* ("Zugewinngemeinschaft") and the British system, individual property rights are maintained within marriage.[6] The property regimes thus increase wives' economic dependency in couples with a gender-traditional division of labour, where the spouse focusing on unpaid work should be economically protected through marriage (BMFSFJ, 2017). A reform of the property regime towards the community of acquisitions would grant women access to any wealth that is accumulated within marriage. As many wives do not own any assets solely (Chapter 3), this reform should reduce the economic imbalance in couples with gender-traditional employment arrangements.

[6] In Britain, no legal property regime exists (Rešetar, 2008). Instead, spouses are treated as independent persons and courts have wide discretion in determining the division of assets in the event of divorce. An exception is Scotland, where property that is purchased for or throughout marriage is equally owned by both spouses.

5.3 Limitations

In the following, I elaborate on three main limitations of this dissertation that address the ability to answer its main research question. First, the holistic life course approach does not test mechanism-based explanations and thus prohibits causal interpretations of the findings. Although the theoretical focus of this dissertation lies on wealth accumulation processes, I cannot directly test the mechanisms linking both partners' accumulation processes. Whereas data limitations do not allow the combination of long-term employment and marriage with wealth biographies, direct tests of monetary transfers between partners are hardly feasible due to the hidden nature of these processes hidden in joint investments. Further, I do not explicitly consider other determinants throughout working life, such as childbirth, additionally explaining wealth outcomes.[7] However, by including the employment status parental leave in Chapters 3 and 4, I partially address the relevance of parenthood for wealth accumulation.

Second, the results of this dissertation capture mean differences across the wealth distribution, which might vary along the wealth distribution. For instance, the association between employment and wealth might be stronger in the middle of the wealth distribution. In return, the wealth-poor might not have surplus income for investments, whereas the wealth-rich might accumulate wealth predominantly via wealth transfers and compound interest effects. Due to sample size limitations resulting from high data requirements of the holistic life course approach, it was however not possible to employ more differentiated models like quantile regressions that differentiate between different wealth groups.

Third, although the personal wealth accumulation processes within couples theorised in this dissertation can be applied to both cohabiting and same-sex couples, the results might not be transferable to couple types other than different-sex married couples. As marriage is selective of economically successful and strongly committed couples, biographies might differently shape personal wealth outcomes throughout marriage and cohabitation. Compared with other couple

[7] Inheritances constitute an exception, as they might fundamentally shape wealth outcomes in later life. Although they occur simultaneously with employment and marriage biographies, I therefore control for personal inheritances in all three studies of this dissertation using SOEP data.

types, married women and men might benefit from broader access to wealth (Lersch, 2017b). In cohabiting and same-sex unions, in contrast, individuals might aim to ensure their economic well-being independent from the partner, as they lack the protection of an institutionalised marriage[8] and tend to uphold more gender-egalitarian ideologies than different-sex married couples (Yodanis & Lauer, 2014).

5.4 Future research directions

Despite the limitations discussed in the previous section, this dissertation sheds light on individuals' wealth accumulation processes within couples and lays the ground for future work on economic gender inequality. There are various directions for further research. A first avenue for future research is the combination of the *intra*generational perspective I take in this dissertation with an *inter*generational perspective. Whereas prior research on the transmission of wealth from parents or grandparents has mostly focused on critical family events like marriage and childbirth (Bessière, 2019; Leopold & Schneider, 2011), a more thorough examination of the long-term consequences of bequests or *inter vivos* transfers from a multi-generational life course perspective is still outstanding.

A second research direction lies in the extension of my research questions to other country contexts. Because this dissertation shows that wealth accumulation is country-specific, the generalisability of the results to other country contexts beyond Western Germany, Eastern Germany, and Britain might remain limited. Particularly Eastern Germany is characterised by a special history as a socialist regime that has been replaced with a capitalist system, thus implying consequences for wealth holdings distinct from any other country. A promising avenue of research lies in the comparison of wealth of Eastern Germany with other socialist and post-socialist countries. In return, Western Germany and Britain share historically strong male breadwinner contexts with moderate wealth inequality. The associations between employment

[8] Germany legalised same-sex marriages in 2017. Britain legalised same-sex marriages in 2014 (with exception of Northern Ireland, where the legalisation was conducted in 2020).

and wealth might however change in countries with higher gender egalitarianism, varying levels of wealth inequality, and distinct policy settings, such as Scandinavian countries.

A third avenue for further research lies in the examination of both the positive and the negative dimension of wealth, i.e., assets and debts. This dissertation has mainly focused on the positive dimension of wealth when theorising about wealth accumulation processes of individuals within couples, utilising measures of gross and net worth. Whereas my findings indicate that debts are of low relevance among married couples in later life, recent research suggests that raising debt constitutes an important investment strategy for individuals, which is largely defined by their access to credit (Hansen & Toft, 2021). Future studies should thus examine how couples apply and differ in their usage of raising debt as means of wealth accumulation over the life course.

Overall, this dissertation indicates that both marriage and employment ensure women's economic well-being in later life. In light of increasing divorce and declining homeownership rates in Germany and Britain, the protecting role of marriage through joint investments might however decrease for future cohorts, emphasising the role of employment to ensure women's economic well-being in old age.

6 Bibliography

Abbott, A. (2001). *Time matters: On theory and method*. Chicago: University of Chicago Press.

Aisenbrey, S., & Fasang, A. E. (2010). New life for old ideas: The "second wave" of sequence analysis bringing the "course" back into the life course. *Sociological Methods and Research*, *38*(3), 420–462. https://doi.org/10.1177/0049124109357532

Alvaredo, F., Garbinti, B., & Piketty, T. (2017). On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010. *Economica*, *84*(334), 239–260. https://doi.org/10.1111/ecca.12233

Amuedo-Dorantes, C., Bonke, J., & Grossbard, S. A. (2010). *Income pooling and household division of labor: Evidence from Danish couples.* IZA Discussion Paper, 5418.

Anglade, B., Useche, P., & Deere, C. D. (2017). Decomposing the gender wealth gap in Ecuador. *World Development*, *96*, 19–31. https://doi.org/10.1016/j.worlddev.2017.02.003

Bach, S., Fischer, B., de Haan, P. W., & Wrohlich, K. (2020). *Reform des Ehegattensplittings: Realsplitting mit niedrigem Übertragungsbetrag ist ein guter Kompromiss. [Reform of the spousal splitting system: Real splitting with a low transfer amount is a good compromise]*. DIW Wochenbericht, 87(41), 785–794.

Bach, S., Haan, P., & Ochmann, R. (2013). Taxation of married couples in Germany and the UK: One-earner couples make the difference. *International Journal of Microsimulation*, *6*(3), 3–24. https://doi.org/10.34196/ijm.00086

Bayrakdar, S., Coulter, R., Lersch, P., & Vidal, S. (2019). Family formation, parental background and young adults' first entry into homeownership in Britain and Germany. *Housing Studies*, *34*(6), 974–996. https://doi.org/10.1080/02673037.2018.1509949

Becker, G. (1981). *A treatise on the family*. Cambridge, Massachusetts: Harvard University Press.

Bennett, F., & Sung, S. (2013). Dimensions of financial autonomy in low-/moderate-income couples from a gender perspective and implications for welfare reform. *Journal of Social Policy*, *42*(4), 701–719. https://doi.org/10.1017/S0047279413000330

Bernardi, L., Huinink, J., & Settersten, R. A. (2019). The life course cube: A tool for studying lives. *Advances in Life Course Research*, *41*, 100258. https://doi.org/10.1016/j.alcr.2018.11.004

Bessière, C. (2019). Reversed accounting: Legal professionals, families and the gender wealth gap in France. *Socio-Economic Review*, *0*, 1–24. https://doi.org/10.1093/ser/mwz036

Bisdee, D., Daly, T., & Price, D. (2013). Behind closed doors: Older couples and the gendered management of household money. *Social Policy and Society*, *12*(1), 163–174. https://doi.org/10.1017/S147474641200053X

Blundell, R., Crawford, R., French, E., & Tetlow, G. (2016). Comparing retirement wealth trajectories on both sides of the pond. *Fiscal Studies*, *37*(1), 105–130. https://doi.org/10.1111/j.1475-5890.2016.12086

Breiman, L. (2001). Statistical modeling: The two cultures (with comments and a rejoinder by the author). *Statistical Science*, *16*(3), 199–231. https://doi.org/10.1214/ss/1009213726

Bucher-Koenen, T., & Lamla-Dietrich, B. (2018). The long shadow of socialism: Puzzling evidence on East-West German differences in financial literacy. *Economic Notes*, *47*(2–3), 413–438. https://doi.org/10.1111/ECNO.12108

Bundesministerium für Familie, Senioren, Frauen und Jugend (BMFSFJ) (2017). *Zweiter Gleichstellungsbericht der Bundesregierung. [Second equality report of the federal government.]*

Burgoyne, C. B. (1990). Money in marriage: How patterns of allocation both reflect and conceal power. *The Sociological Review*, *38*(4), 634–665. https://doi.org/10.1111/J.1467-954X.1990.TB00933.X

Carman, K. G., & Hung, A. A. (2017). *Household retirement saving: The location of savings between spouses.* RAND Working Paper.

Chang, M. L. (2010). *Shortchanged: Why women have less wealth and what can be done about it*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195367690.001.0001

Chiappori, P. A. (1988). Rational household labor supply. *Econometrica*: *Journal of the Econometric Society*, *56*, 63–89. https://doi.org/10.2307/1911842

Çineli, B. (2020). Money management and gender equality: An analysis of dual-earner couples in western Europe. *Family Relations*, *69*(4), 803–819. https://doi.org/10.1111/FARE.12465

D'Alessio, G. (2018). *Gender wealth gap in Italy*. Bank of Italy Occasional Paper, No 433.

Davies, J. B., & Shorrocks, A. F. (2000). The distribution of wealth. In A. B. Atkinson & F. Bourguignon (Ed.), *Handbook of income distribution*, Vol. 1 (pp. 605–675). Elsevier.

Deere, C. D., & Doss, C. R. (2006). The gender asset gap: What do we know and why does it matter? *Feminist Economics*, *12*(1–2), 1–50. https://doi.org/10.1080/13545700500508056

Destatis (2021). Population of Germany by marital status and age group. https://www.destatis.de/EN/Themes/Society-Environment/Population/_Graphic/_Interactive/population-marital-status-group.html [accessed 28 October 2021]

Dew, J. (2016). Revisiting financial issues and marriage. In J. J. Xiao (Ed.), *Handbook of*

consumer finance research (pp. 281–290). https://doi.org/10.1007/978-3-319-28887-1

Dew, J., Britt, S., & Huston, S. (2012). Examining the relationship between financial issues and divorce. *Family Relations*, *61*(4), 615–628. https://doi.org/10.1111/j.1741-3729.2012.00715.x

Doss, C. R., Deere, C. D., Oduro, A. D., Swaminathan, H., Catanzarite, Z., & Suchitra, J. Y. (2019). Gendered paths to asset accumulation? Markets, savings, and credit in developing countries. *Feminist Economics*, *25*(2), 36–66. https://doi.org/10.1080/13545701.2019.1566753

Duvander, A. Z., & Johansson, M. (2019). Does fathers' care spill over? Evaluating reforms in the Swedish parental leave program. *Feminist Economics*, *25*(2), 67–89. https://doi.org/10.1080/13545701.2018.1474240

Ebbinghaus, B. (2015). The privatization and marketization of pensions in Europe: A double transformation facing the crisis. *European Policy Analysis*, *1*(1), 56–73. https://doi.org/10.18278/epa.1.1.5

Ebbinghaus, B. (2021). Inequalities and poverty risks in old age across Europe: The double-edged income effect of pension systems. *Social Policy and Administration*, *55*(3), 440–455. https://doi.org/10.1111/spol.12683

Elder, G. H. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly*, *57*, 4–15.

Fauser, S., & Scheuring, S. (2021). Couples' early career trajectories and later life housing consequences in Germany: Investigating cumulative disadvantages. *Advances in Life Course Research*, 100445. https://doi.org/10.1016/j.alcr.2021.100445

Fisher, P. J. (2010). Gender differences in personal saving behaviors. *Journal of Financial Counseling and Planning*, *21*(1), 14–24.

Frémeaux, N., & Leturcq, M. (2020). Inequalities and the individualization of wealth. *Journal of Public Economics*, *184*, 104145. https://doi.org/10.1016/j.jpubeco.2020.104145

Frick, J. R., & Grabka, M. M. (2009). Zur Entwicklung der Vermögensungleichheit in Deutschland. [On the development of wealth inequality in Germany]. *Berliner Journal für Soziologie*, *19*, 577–600. https://doi.org/10.1007/s11609-009-0112-1

Gangl, M. (2006). Scar effects of unemployment: An assessment of institutional complementarities. *American Sociological Review*, *71*(6), 986–1013. https://doi.org/10.1177/000312240607100606

Gardiner, J., Robinson, A. M., & Fakhfakh, F. (2016). Exploring the private pension gender gap and occupation in later working life. *Work, Employment and Society*, *30*(4), 687–707. https://doi.org/10.1177/0950017015575868

Giele, J., & Elder, G. H. (1998). *Methods of life course research: Qualitative and quantitative approaches*. Cambridge: Cambridge University Press.

Goebel, J., Grabka, M. M., Liebig, S., Kroh, M., Richter, D., Schröder, C., & Schupp, J. (2019). The German Socio-Economic Panel (SOEP). *Jahrbücher für Nationalökonomie und Statistik* [*Journal of Economics and Statistics]*, *239*(2), 345–360. https://doi.org/10.1515/jbnst-2018-0022

Gornick, J. C., & Sierminska, E. M. (2021). Wealth accumulation and retirement preparedness in cross-national perspective: A gendered analysis of outcomes among single adults. *Journal of European Social Policy*, *31*(5), 549–564. https://doi.org/10.1177/09589287211056174

Grabka, M. M., Bönke, T., Göbler, K., & Tiefensee, A. (2018). *Rentennahe Jahrgänge haben große Lücke in der Sicherung des Lebensstandards [Pensionable cohorts have large gap in securing standard of living]*. DIW Wochenbericht, 85(37), 809–818. https://doi.org/10.18723/diw_wb:2018-37-3

Grabka, M. M., & Halbmeier, C. (2019). *Vermögensungleichheit in Deutschland bleibt trotz deutlich steigender Nettovermögen anhaltend hoch [Wealth inequality in Germany remains persistently high despite significantly rising net wealth]*. DIW Wochenbericht, 86(40), 735–745. https://doi.org/10.18723/diw_wb:2019-40-1

Grabka, M. M., Marcus, J., & Sierminska, E. (2015). Wealth distribution within couples. *Review of Economics of the Household*, *13*(3), 459–486. https://doi.org/10.1007/s11150-013-9229-2

Gritti, D., & Cutuli, G. (2021). Brick-by-brick inequality. Homeownership in Italy, employment instability and wealth transmission. *Advances in Life Course Research*, *100417*. https://doi.org/10.1016/j.alcr.2021.100417

Halpern-Manners, A., Warren, J. R., Raymo, J. M., & Adam Nicholson, D. (2015). The impact of work and family life histories on economic well-being at older ages. *Social Forces*, *93*(4), 1369–1396. https://doi.org/10.1093/sf/sov005

Hansen, M. N., & Toft, M. (2021). Wealth accumulation and opportunity hoarding: Class-origin wealth gaps over a quarter of a century in a Scandinavian country. *American Sociological Review*, *86*(4), 603–638. https://doi.org/10.1177/00031224211020012

Heisig, K., & Zierow, L. (2019). *The baby year parental leave reform in the GDR and its impact on children's long-term life satisfaction.* SOEPpapers on Multidisciplinary Panel Data Research (No. 1059). https://doi.org/10.2139/ssrn.3467939

Hiekel, N., Liefbroer, A. C., & Poortman, A. R. (2014). Income pooling strategies among cohabiting and married couples: A comparative perspective. *Demographic Research*, *30*(1), 1527–1560. https://doi.org/10.4054/DemRes.2014.30.55

Hillesland, M. (2019). Investigating the gender wealth gap in Ghana. *Oxford Development Studies*, *47*(1), 63–78. https://doi.org/10.1080/13600818.2018.1498473

Himmelweit, S., Santos, C., Sevilla, A., & Sofer, C. (2013). Sharing of resources within the family and the economics of household decision making. *Journal of Marriage and Family*, *75*(3), 625–639. https://doi.org/10.1111/jomf.12032

Jianakoplos, N. A., & Bernasek, A. (1998). Are women more risk averse? *Economic Inquiry*, *36*(4), 620–630. https://doi.org/10.1111/j.1465-7295.1998.tb01740.x

Joseph, R., & Rowlingson, K. (2012). Her house, his pension? The division of assets among (ex-) couples and the role of policy. *Social Policy and Society*, *11*(1), 69–80. https://doi.org/10.1017/s147474641100042x

Kan, M. Y., & Laurie, H. (2014). Changing patterns in the allocation of savings, investments and debts within couple relationships. *Sociological Review*, *62*(2), 335–358. https://doi.org/10.1111/1467-954X.12120

Kapelle, N., & Baxter, J. (2021). Marital dissolution and personal wealth: Examining gendered trends across the dissolution process. *Journal of Marriage and Family*, *83*(1), 243–259. https://doi.org/10.1111/jomf.12707

Kapelle, N., & Lersch, P. M. (2020). The accumulation of wealth in marriage: Over-time change and within-couple inequalities. *European Sociological Review*, *36*(4), 580–593. https://doi.org/10.1093/esr/jcaa006

Katz, E. (1997). The intra-household economics of voice and exit. *Feminist Economics*, *3*(3), 25–46. https://doi.org/10.1080/135457097338645

Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual Review of Sociology*, *43*(1), 379–404. https://doi.org/10.1146/annurev-soc-060116-053331

Kohli, M. (2007). The institutionalization of the life course: Looking back to look ahead. *Research in Human Development,* *4*(3-4), 254–271.

https://doi.org/10.1080/15427600701663122

Komp-Leukkunen, K. (2019). Capturing the diversity of working age life-courses: A European perspective on cohorts born before 1945. *PLoS ONE, 14*(2), e0212400. https://doi.org/10.1371/journal.pone.0212400

Kuhn, M., & Ploj, G. (2020). *Job stability, earnings dynamics, and life-cycle savings*. CESifo Working Paper, No. 8710.

Leopold, T., & Schneider, T. (2011). Family events and the timing of intergenerational transfers. *Social Forces*, *90*(2), 595–616. https://doi.org/10.1093/sf/sor030

Lersch, P. M. (2017a). Individual wealth and subjective financial well-being in marriage: Resource integration or separation? *Journal of Marriage and Family*, *79*(5), 1211–1223. https://doi.org/10.1111/jomf.12406

Lersch, P. M. (2017b). The marriage wealth premium revisited: Gender disparities and within-individual changes in personal wealth in Germany. *Demography*, *54*(3), 961–983. https://doi.org/10.1007/s13524-017-0572-4

Lersch, P. M., Jacob, M., & Hank, K. (2017). Parenthood, gender, and personal wealth. *European Sociological Review*, *33*(3), 410–422. https://doi.org/10.1093/esr/jcx046

Lott, Y. (2017). When my money becomes our money: Changes in couples' money management. *Social Policy and Society*, *16*(2), 199–218. https://doi.org/10.1017/S1474746415000688

Madero-Cabib, I., & Fasang, A. E. (2016). Gendered work-family life courses and financial well-being in retirement. *Advances in Life Course Research*, *27*, 43–60. https://doi.org/10.1016/j.alcr.2015.11.003

Mayer, K. U. (2004). Whose lives? How history, societies, and institutions define and shape life courses. *Research in Human Development*, *1*(3), 161–187. https://doi.org/10.4324/9780203764435-3

Mayer, K. U. (2005). Life courses and life chances in a comparative perspective. In S. Svallfors (Ed.), *Analyzing inequality: Life chances and social mobility in comparative perspective* (pp. 17–55). Stanford University Press.

Mayer, K. U. (2009). New directions in life course research. *Annual Review of Sociology*, *35*, 413–433. https://doi.org/10.1146/annurev.soc.34.040507.134619

Meriküll, J., Kukk, M., & Rõõm, T. (2020). What explains the gender gap in wealth? Evidence from administrative data. *Review of Economics of the Household*. https://doi.org/10.1007/s11150-020-09522-x

Metzger, C. (2018*).* Intra-household allocation of non-mandatory retirement savings. *Journal of the Economics of Ageing, 12*, 77–87. https://doi.org/10.1016/j.jeoa.2018.02.001

Modigliani, F., & Brumberg, R. (1954). Utility analysis and the consumption function: An interpretation of cross-section data. In *Post-Keynesian economics*. https://doi.org/10.4324/9781315016849

Möhring, K. (2016). Life course regimes in Europe: Individual employment histories in comparative and historical perspective. *Journal of European Social Policy*, *26*(2), 124–139. https://doi.org/10.1177/0958928716633046

Möhring, K., & Weiland, A. P. (2021). Couples' life courses and women's income in later life: A multichannel sequence analysis of linked lives in Germany. *European Sociological Review*, jcab048. https://doi.org/10.1093/esr/jcab048

Musick, K., Bea, M. D., & Gonalons-Pons, P. (2020). His and her earnings following parenthood in the United States, Germany, and the United Kingdom. *American Sociological Review, 85*(4), 639-674. https://doi.org/10.1177/0003122420934430

Neelakantan, U., & Chang, Y. (2010). Gender differences in wealth at retirement. *American*

Economic Review, *100*(2), 362–367.

OECD. (2019). *Pensions at a glance 2019 – OECD and G20 indicators*. https://doi.org/https://doi.org/10.1787/b6d3dcfc-en

OECD. (2021a). *Employment: Employment/population ratio, by sex and age group*. https://stats.oecd.org/index.aspx?queryid=54742

OECD. (2021b). *Employment rate (indicator)*. https://doi.org/10.1787/1de68a9b-en [accessed 28 October 2021]

OECD. (2021c). *Part-time employment rate (indicator)*. https://doi.org/10.1787/f2ad596c-en [accessed 28 October 2021]

OECD. (2021d). *Wealth distribution database*. https://stats.oecd.org/Index.aspx?DataSetCode=IDD# [accessed 28 October 2021]

Ozturk, G. B., & Gallo, W. T. (2013). *Effect of job loss on wealth accumulation of older workers*. CUNY School of Public Health at Hunter College.

Pfeffer, F. T., & Waitkus, N. (2021). The wealth inequality of nations. *American Sociological Review*, *86*(4), 567–602. https://doi.org/10.1177/00031224211027800

Piccarreta, R., & Studer, M. (2019). Holistic analysis of the life course: Methodological challenges and new perspectives. *Advances in Life Course Research*, *41*, 100251. https://doi.org/10.1016/j.alcr.2018.10.004

Ponomarenko, V. (2017). *Wealth accumulation over the life course. The role of disadvantages across the employment history*. University of Luxembourg. https://orbilu.uni.lu/handle/10993/29219 [accessed 28 October 2021]

Ponthieux, S., & Meurs, D. (2015). Gender inequality. In A. B. Atkinson & F. Bourguignon (Ed.), *Handbook of income distribution*, Vol. 2 (pp. 981–1146). Elsevier. https://doi.org/10.1016/B978-0-444-59428-0.00013-8

Rešetar, B. (2008). Matrimonial property in Europe: A link between sociology and family law. *Electronic Journal of Comparative Law*, *12*(3), 1–10.

Ruel, E., & Hauser, R. M. (2013). Explaining the gender wealth gap. *Demography*, *50*(4), 1155–1176. https://doi.org/10.1007/s13524-012-0182-0

Semyonov, M., & Lewin-Epstein, N. (2013). Ways to richness: Determination of household wealth in 16 countries. *European Sociological Review*, *29*(6), 1134–1148. https://doi.org/10.1093/esr/jct001

Sierminska, E., Frick, J. R., & Grabka, M. M. (2010). Examining the gender wealth gap. *Oxford Economic Papers*, *62*(4), 669–690. https://doi.org/10.1093/oep/gpq007

Sierminska, E., Piazzalunga, D., & Grabka, M. M. (2018). *Transitioning towards more equality? Wealth gender differences and the changing role of explanatory factors over time*. Bonn, Germany: IZA Discussion Papers 12404IZA.

Simonson, J., Gordo, L. R., & Titova, N. (2011). Changing employment patterns of women in Germany: How do baby boomers differ from older cohorts? A comparison using sequence analysis. *Advances in Life Course Research*, *16*(2), 65–82. https://doi.org/10.1016/J.ALCR.2011.03.002

Skopek, N., Buchholz, S., & Blossfeld, H. P. (2014). National patterns of income and wealth inequality. *International Journal of Comparative Sociology*, *55*(6), 463–488. https://doi.org/10.1177/0020715214565674

Struffolino, E., Bernardi, L., & Larenza, O. (2020). Lone mothers' employment trajectories: A longitudinal mixed-method study. *Comparative Population Studies, 45*, 265–298. https://doi.org/10.12765/CPoS-2020-14.

Struffolino, E., Studer, M., & Fasang, A. E. (2016). Gender, education, and family life courses in

East and West Germany: Insights from new sequence analysis techniques. *Advances in Life Course Research*, *29*, 66–79. https://doi.org/10.1016/j.alcr.2015.12.001

Tisch, D. (2021). My gain or your loss? Changes in within-couple relative wealth and partners' life satisfaction. *European Sociological Review*, *37*(2), 271–286. https://doi.org/10.1093/esr/jcaa052

Toussaint, J., & Elsinga, M. (2009). Exploring "Housing asset-based welfare". Can the UK be held up as an example for Europe? *Housing Studies*, *24*(5), 669–692. https://doi.org/10.1080/02673030903083326

Trappe, H., Pollmann-Schult, M., & Schmitt, C. (2015). The rise and decline of the male breadwinner model: Institutional underpinnings and future expectations. *European Sociological Review*, *31*(2), 230–242. https://doi.org/10.1093/esr/jcv015

University of Essex, Institute for Social and Economic Research, NatCen Social Research, Kantar Public (2019). *Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009. [data collection]* (12th ed.). UK Data Service. SN: 6.

Waitkus, N., & Minkus, L. (2021). Investigating the gender wealth gap across occupational classes. *Feminist Economics*, *27*(4), 114–147. https://doi.org/10.1080/13545701.2021.1973059

West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society*, *1*(2), 125–151. https://doi.org/10.1177/0891243287001002002

Wrohlich, K. (2011). *Labor supply and child care choices in a rationed child care market*. DIW Discussion Papers, No. 1169.

Yodanis, C., & Lauer, S. (2014). Is marriage individualized? What couples actually do. *Journal of Family Theory & Review*, *6*(2), 184–197. https://doi.org/10.1111/jftr.12038

CHAPTER 2

GENDERED EMPLOYMENT TRAJECTORIES AND INDIVIDUAL WEALTH AT OLDER AGES IN EASTERN AND WESTERN GERMANY

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Abstract: This study examines the association between employment trajectories and retired men's and women's individual wealth at older ages in the two distinct welfare state contexts of Eastern and Western Germany. Because of the increasing re-marketization of retirement provisions, wealth is becoming increasingly important for retirees' economic well-being. Using data from the German Socio-Economic Panel Study (2002, 2007, 2012 and 2017), we conduct sequence and cluster analyses to identify groups of typical employment trajectories of men and women in Eastern and Western Germany. For men, we find that continuous full-time employment is positively associated with net wealth at older ages, whereas early retirement and long-term unemployment are negatively associated with wealth. These associations are similar for housing and non-housing wealth in both contexts. For women in Western Germany, a low labour market participation is associated with higher levels of housing wealth and lower levels of non-housing wealth compared with female full-time employees. The results point to gendered wealth accumulation due to differences in men's and women's labour market participation in gender-unequal welfare state contexts. The associations between employment and wealth are slightly weaker in Eastern Germany, indicating that the socialist regime of the GDR restricted the ability to accumulate wealth.

1 Introduction

The long reach of (non-)employment into older age distinctively shapes men's and women's economic well-being beyond retirement (Fasang, Aisenbrey and Schömann, 2013). With longer life expectancies and extended periods of retirement (Chang, 2010: 10-11), the consequences of employment for economic well-being in older age are increasingly relevant to our understanding of general social stratification in post-industrialised societies. At the same time, the re-marketisation of retirement provision has increased the need to accumulate private wealth in response to the reduction of public pension provision in many developed welfare states, including Germany (Ebbinghaus, 2015). Inequalities in private wealth may compound existing disparities in public provision. Because of men's and women's unequal potential to accumulate wealth, additional gender inequalities may arise.

Against this background, this study uses the example of Germany to examine the association between employment and individual wealth at older ages for men and women who had retired by 2017. We address two research questions*: (a) How are employment trajectories related to individual wealth at older ages of men and women? (b) How do these relationships differ between Eastern and Western Germany?* As earnings are a major source of wealth (Spilerman, 2000), we expect gendered processes of wealth accumulation as a result of the high income inequality between men and women in Germany. In addition, men's and women's processes of wealth accumulation can be expected to differ between the institutional contexts of Eastern and Western Germany. Because of its highly gendered labour market, with variation between east and west, Germany is a particularly interesting case for studying the long reach of different patterns of (non-)employment for wealth inequality.

Employment trajectories of men and women in Europe and the United States have been studied thoroughly in prior research, including the comparison of Eastern and Western Germany (Aassve, Billari and Piccarreta, 2007; Aisenbrey and Fasang, 2017; Damaske and Frech, 2016; McMunn et al., 2015; Ponomarenko, 2016; Simonson, Gordo and Kelle, 2015; Simonson, Romeu Gordo and Titova, 2011). Research has shown that employment trajectories are strongly associated with

income (Halpern-Manners, Warren, Raymo and Nicholson, 2015; Weisshaar and Cabello-Hutt, 2020) and pension income (Fasang et al., 2013; Madero-Cabib and Fasang, 2016; Möhring, 2014, 2017; Tophoven and Tisch, 2016) in later life. Whereas most studies focused on single countries, a few studies examined the association between employment histories and pension income across distinct welfare state contexts (Fasang et al., 2013; Möhring, 2014, 2017). Going beyond a narrow focus on income to study economic well-being, pioneering studies have also examined how employment is related to household-level wealth in later life (Halpern-Manners et al., 2015; Ponomarenko, 2017), but without fully considering the complexity of previous employment trajectories.

In the present study, we contribute to this literature by examining the association of employment trajectories and individual wealth at older ages in a cross-country comparison between Eastern and Western Germany. Wealth is a crucial measure of economic well-being distinct from income (Spilerman, 2000). Wealth and income are only moderately correlated (Killewald, Pfeffer and Schachner 2017). In particular at older age, approximating economic well-being only via income can be misleading as many people save for the income decline at retirement. For instance, the economic well-being of the elderly is considerably influenced by their housing wealth (Delfani, Deken and Dewilde, 2015). Furthermore, considering wealth only at the household level is insufficient to assess the economic well-being of individuals, as there is clear evidence that assets are not shared equally within couples (Bennett, 2013; Joseph and Rowlingson, 2012). For instance, the average within-couple wealth gap in favour of men is about EUR 33,000 in Germany (Grabka, Marcus and Sierminska, 2015).

We build on the well-established literature on (pension) income at older age, as both pension entitlements and private wealth are accumulated in the long term throughout the career. The results from the literature on income cannot directly be transferred to wealth, however. The association between employment and pension entitlements is usually determined by a pension formula that considers the length of employment and income levels. For private wealth at retirement, however, this association is less straightforward. First, also with similar levels of labour market income, the surplus income individuals are able to save or invest in wealth-

producing assets can vary strongly, based on their level of expenditure and income volatility (Spilerman, 2000). Second, investments of similar size can provide different returns, depending on investment behaviour (Chang, 2010; Sierminska, Piazzalunga and Grabka, 2018). The returns depend on the type of wealth individuals invest in and the resulting wealth portfolio allocation choices that are associated with differing interest rates and increases in value. Third, in contrast to the cumulative acquisition of pension entitlements (Tophoven and Tisch, 2016), the relationship between employment and wealth can also be negative as a consequence of loans or consumer debts.

Prior research has argued that the relationship between employment and household wealth is embedded in institutional and historical arrangements that considerably shape access to and the distribution of wealth-building instruments, but little progress has been made in our understanding of how welfare states differ systematically in their influence on wealth accumulation (Fessler and Schürz, 2018; Jäntti, Sierminska and van Kerm, 2015; Pfeffer and Waitkus, 2019; Semyonov and Lewin-Epstein, 2013; Skopek, Buchholz and Blossfeld, 2014). In particular, it remains unclear how the association between long-term employment histories and individual wealth at older ages differs across welfare states. The German division offers a unique opportunity to compare the processes of men's and women's wealth accumulation in two historically distinct welfare state regimes, using a common survey, the Socio-Economic Panel (SOEP). Prior studies found strong and persisting wealth inequalities between the two contexts, with an average wealth gap of around EUR 66,500 in favour of Western Germany in 2017 (Grabka and Halbmeier, 2019). The gap is commonly explained by restricted opportunities for wealth accumulation in formerly socialist Eastern Germany and higher unemployment, lower wages, and lower homeownership rates after reunification. Running separate analyses for men and women from Eastern and Western Germany enables us to examine whether employment patterns are differently associated with individual wealth at older ages, depending on context specifics.

Our empirical analysis proceeds in two steps. First, we use sequence and cluster analysis to identify and combine employment trajectories of retired men and women from Eastern and Western Germany, ranging from ages 20 to 55 in internally homogeneous and externally

heterogeneous clusters (Abbott, 1995). Second, we examine how these clusters are associated with individual wealth at older ages in two different welfare state contexts, applying multivariable OLS regression models. The holistic life course analysis approach goes beyond research aiming to identify causal mechanisms between covariates and single events (Abbott, 1992). Employment trajectories are conceptualized as process outcomes that depict social reality as an unfolding process in "sequences of actions located within constraining or enabling structures" of the macrostructural contexts under study (Abbott, 1992: 428). This approach enables us to examine the gender-specific interplay of employment trajectories and individual wealth in an in-depth longitudinal comparison between Eastern and Western Germany that is not constrained by pre-existing expectations regarding the relevance of certain life course events.

2 Background

2.1 Previous research

A positive association between continuous full-time employment and household wealth is well documented in the literature (Halpern-Manners et al., 2015; Ponomarenko, 2017). In contrast, unemployment and part-time employment are found to be negatively associated with household wealth (Halpern-Manners et al., 2015; Ozturk and Gallo, 2013; Ponomarenko, 2017). This literature is limited because measures of household wealth neglect intra-household inequalities in individual wealth (Deere and Doss, 2006). As prior research has shown, disparities in individual wealth within households can be substantial (Grabka et al., 2015; Sierminska, Frick and Grabka, 2010). These inequalities are problematic as they may create undesired economic dependencies and increasing insecurity for the spouse without direct legal ownership (Joseph and Rowlingson, 2012). For example, even if spouses living in the same house benefit equally from the accommodation, the non-owner might still experience insecurity about the spouse's future behaviour due to their economic dependency. In contrast, individual wealth provides autonomy, independence and economic security that is central, not only during the partnership but also in the event of union dissolution.

There is clear evidence for intra-household wealth inequality in favour of men in Germany. In married and cohabiting couples, men hold, on average, EUR 33,000 more individual net wealth than women (Grabka et al., 2015). At the same time, men's and women's employment patterns in Germany differ strongly (Simonson et al., 2011, 2015). Prior research found labour market experience (job tenure, income) to be most important for explaining the gender wealth gap (Carman and Hung, 2017; Sierminska et al., 2010). In particular, women's lower rates and discontinuous patterns of labour market participation, their lower working hours and the gender wage gap reduce their ability to build up assets over their working lives (Chang, 2010; Sierminska et al., 2018).

The literature on employment and wealth is also limited because it relies on simple summary measures to explain wealth outcomes, such as "years in full-time employment" or "unemployment in previous 5 years" (Grabka et al., 2015: Ponomarenko, 2017; Sierminska et al., 2018). These measures cannot fully capture the characteristics of life course pathways that matter for economic well-being at older ages (Halpern-Manners et al., 2015). Due to the long-term nature of wealth that is built up over the life course, it is important to consider the timing, sequencing and duration of particular employment episodes during the career. By employing sequence analysis, we contribute to prior research by considering the complexity of previous employment trajectories between ages 20 and 55. Due to the large variation of men's and women's careers in Germany, we conceptualize wealth accumulation via employment as a process that unfolds differently over men's and women's life courses.

Whereas prior research has examined the association between employment histories and pension income across distinct welfare state contexts (Fasang et al., 2013; Möhring, 2014, 2017), this area is under-researched in terms of wealth. As an exception, Ponomarenko (2017) has examined how employment is related to household-level wealth in later life in 13 European countries. By relying on simple summary measures to explain wealth outcomes, however, she did not fully capture the complexity of previous employment trajectories that is possible with a sequence analysis approach.

2.2 Wealth accumulation throughout working life

Originating from the life course paradigm (Mayer, 2009), prior life histories influence later life outcomes through complex, temporally organized pathways. Due to the long-term nature of wealth, the life course perspective is particularly suited to examine the economic consequences of wealth accumulation during working life. The accumulation of self-generated wealth is not only driven by individual action but also embedded in household and institutional contexts (Mayer, 2005). Therefore, we consider the welfare state regimes of the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR) that influenced the life courses of the birth cohorts under study. In supplementary analyses, we examine the household context by taking the partners' employment biographies into account.

Self-generated wealth is accumulated mainly through the saving and investment of labour income (Spilerman, 2000). In contrast to income flows, wealth is a stock measure that can grow through compound interest effects. On average, both salaries and hourly wages are higher for full-time than for part-time jobs, thereby promoting wealth accumulation among the regularly employed (Chang, 2010: 40-47). During periods out of the labour force, income is substantially reduced, which impairs the ability to accumulate wealth. Through scarring effects, this income reduction may continue beyond unemployment, being particularly disadvantageous with increasing duration of unemployment (Gangl, 2006). A late labour market entry of women is also negatively but less clearly associated with household wealth in later life (Halpern-Manners et al., 2015).

In order to smooth consumption, individuals may draw on their previously accumulated assets during periods out of the labour force. In addition, long-term unemployment benefits in Germany are means-tested; that is, wealth must be dissaved up to a specified amount before welfare support is granted.[9] The ability to build up wealth is particularly restricted with volatile employment trajectories (Halpern-Manners et al., 2015). Also, transitions into "bad jobs" are strongly negatively associated with household wealth in later life, as individuals are restricted in building

[9] Between 1956 and 2004, the maximum personal allowance was EUR 33,800 for persons born before 1948 (EUR 13,000 born after 1948). The maximum personal allowance of pension wealth was EUR 13,000 (excluding Riester pensions). After the Hartz IV reforms in 2005, the maximum personal allowance was reduced to EUR 9,750.

up new wealth in the long run. As the wealth holdings of most households in Germany only cover a few weeks of income replacement (Tiefensee, 2017), prolonged employment disruptions also increase the risk of indebtedness.

Public pensions provide the largest share of retirees' financial resources in Germany. In the contribution-based pension system, employees earn points corresponding to their income levels and the length of the contribution period (including periods of unemployment and childcare). To make up for the statutory pension cuts in recent decades in Germany, voluntary occupational and private pension schemes have gained importance (Tophoven and Tisch, 2016). These voluntary pension schemes have increasingly shifted responsibility to provide for one's old age from the state to the individual (Ebbinghaus, 2015). Therefore, surplus labour income has become even more important to ensure retirees' economic well-being in recent decades.

Because of the gendered patterns of labour market participation in Germany, we expect different processes of wealth accumulation among men and women. Receiving intergenerational transfers may potentially contribute to wealth disparities, but empirical findings show gender equality in inheritances in Germany (Szydlik, 2004). Thus, we expect employment biographies to operate as the main predictor in the explanation of gender wealth disparities in later life. In line with studies on the gender wealth gap, women's lower salaries and shorter working lives are likely to restrict their ability to accumulate wealth compared with men (Grabka et al., 2015; Sierminska et al., 2018). Most women in Germany are homemakers or part-time employed, whereas men are commonly full-time earners (Simonson et al., 2011, 2015). Prior research has shown that couples with a traditional division of labour apply strategies of income pooling to compensate women for unpaid household work (Amuedo-Dorantes, Bonke and Grossbard, 2010). Couples might apply similar compensation strategies in wealth through the joint ownership of assets.

In Germany, married spouses live by default under the marital property regime of community of accrued gains (*Zugewinngemeinschaft*). This means that the individual wealth of spouses and respective gains accrued before and during marriage remain in individuals' ownership. In the event of divorce, the gains accrued during marriage (except gifts and inheritances) will be divided

equally. Hence, the ownership of individual wealth is relevant to individuals in married couples, as the property of spouses does not become common property during marriage.

Despite the legal separation of property, spouses may informally participate in one another's wealth accumulation. They are particularly inclined to accumulate assets together, so they own the respective asset jointly. Whereas financial assets such as savings are more likely to be held separately, housing wealth is often jointly owned by both partners (Joseph and Rowlingson, 2012). The large investment in joint homeownership not only implies a couple's long-term commitment but also has practical reasons. Homeownership is a large investment that often has to be financed together, whereby spouses' mutual security increases creditworthiness (Rossi and Sierminska, 2018: 55–83). Particularly in male breadwinner constellations, female secondary earners may benefit indirectly from the redistributive character of joint homeownership if their full-time employed partners pay relatively larger shares of mortgage debt. Therefore, the wife's compensation in wealth through the joint ownership of assets should largely depend on the husband's employment biography.

2.3 Wealth accumulation in Eastern and Western Germany

To gain a better understanding of how the context influences the link between employment and wealth in later life for both genders, we compare labour market, family, and wealth-related policies in Eastern and Western Germany (Mayer, 2005). From 1961 to 1990, Germany was divided into the market-oriented, democratic Federal Republic of Germany (FRG), with a socially conservative welfare state, and the German Democratic Republic (GDR), with a centrally planned economy and socialist policies. With reunification, the institutions of the GDR were replaced with the institutions of the FRG.

The institutions of the welfare state regime shape individual life courses. In contrast to the FRG and other welfare states, the rationale for welfare provision in the GDR was not the support of poor members of society, but the stabilization of the political regime (Burdumy, 2013). In the GDR, wages were set centrally and open unemployment did not exist, as everyone was required to work. In the FRG, in contrast, there was more wage dispersion and periodically substantial

unemployment (Bucher-Koenen and Lamla-Dietrich, 2018; Burdumy, 2013). Whereas childcare facilities in the GDR encouraged women to combine full-time work and motherhood, women in the FRG were expected to be mainly homemakers and caregivers, with men being the primary breadwinners.

At reunification, private wealth in the GDR changed dramatically because of several processes. First, savings higher than 4,000 Mark (6,000 Mark for persons aged 60 and older) were converted 2:1 into Deutsche Mark, while lower savings were converted 1:1. Second, real estate values increased if properties were either privately owned before reunification or bought at "old" prices shortly after reunification. Third, previously expropriated individual property was subject to restitution. Fourth, public property of the GDR was privatized after reunification. Fifth, although there was no direct financial compensation, extensive public subsidies and alignment with Western German social benefits improved wealth in the former GDR after reunification (Hauser et al., 1996: 158–159).

Although the wealth gap is declining slowly, individuals in the former GDR still had less wealth by 2017 (Grabka and Halbmeier, 2019). The gap has persisted for several reasons. Whereas private wealth ownership was limited in the GDR, the FRG had free capital markets, promoting wealth accumulation. Contextual differences were perpetuated through the intergenerational transmission of wealth, particularly through the lower homeownership rates in the former GDR (Frick and Grabka, 2009). Lower wage levels and mass unemployment in Eastern Germany after reunification further impaired wealth accumulation (Grabka, 2014). Individuals in Eastern Germany also faced greater incentives to retire early in order to reduce high unemployment rates.

2.4 Expectations

As we empirically derive major employment patterns in our study contexts using a sequence analysis approach, we do not elaborate hypotheses on specific employment pathways (Abbott, 1992). In the following, we therefore formulate general expectations on gender-specific associations of employment trajectories and individual wealth at older ages (research question 1) and differences between Eastern and Western Germany (research question 2).

Self-generated wealth is likely to be accumulated mainly through the saving and investment of labour income. We therefore expect stable full-time employment to be more positively associated with individual wealth at retirement because it provides more stable and higher income flows than other employment trajectories. Furthermore, we expect women's lower salaries and shorter working lives to restrict their ability to accumulate individual wealth through employment compared with men. Consequently, employment is likely to be more strongly associated with men's than with women's wealth holdings at older ages.

As women focusing on unpaid work in the household are restricted in their ability to accumulate wealth through employment, they can be assumed to pursue different ways to accumulate wealth. We expect them to benefit from their partners' financial contributions to jointly owned assets. Particularly in male breadwinner constellations, we therefore expect women to benefit primarily from the redistributive character of joint homeownership.

Furthermore, the fundamental differences between both welfare regimes shape men's and women's employment trajectories and influence their abilities to acquire and hold wealth. Similar employment trajectories should therefore result in different wealth outcomes, depending on the context. As private wealth ownership was limited in the GDR, we expect employment to be less strongly associated with individual wealth at retirement for individuals in Eastern than in Western Germany. We expect the negative associations between non-employment and wealth to persist in both contexts, however. Eastern Germans who were affected by mass unemployment after reunification might not be able to re-enter full-time employment with increasing age, which subjects them to the same institutional restrictions as the unemployed in Western Germany.

Although equality was not achieved, gender inequality in the labour market was lower in the GDR (Rosenfeld, Trappe and Gornick, 2004). As careers of both genders are strongly oriented towards full-time employment in Eastern Germany, we expect the gender differences in the processes of wealth accumulation to be smaller in Eastern than in Western Germany. Furthermore, the partner's employment should play a less important role for women in Eastern Germany, as the joint accumulation of assets should be less widespread due to the lower rates of homeownership.

3 Data, measurement, and method

3.1 Data

We draw on data from the German Socio-Economic Panel (SOEP; v34: doi: 10.5684/soep.v34), which is a large, nationally representative household panel survey for Germany (Goebel et al., 2019). In 2002, 2007, 2012, and 2017, the survey collected comprehensive information on the individual wealth of all adult household members. The SOEP also contains comprehensive retrospective data on individuals' employment biographies, capturing working lives from labour market entry until retirement. Respondents provide retrospective biographical information once during the first interview, which is afterwards updated with prospective data from the yearly survey. For our analyses, we use multiply imputed wealth data building on five sets of imputed wealth values by the SOEP team (Grabka and Westermeier, 2015). We additionally impute missing values separately by gender and context for other analytical variables using chained equations with Stata's mi procedure. A total of 30 imputations are created (see Section B2 and Table B1 in the online appendix for further details).

We restrict our analytical sample to retired people to capture the economic outcomes of individuals' careers. We rely on employment trajectories from 20 to 55 as determinants of wealth at older ages and therefore exclude respondents younger than 56 years of age. Furthermore, as we examine the outcomes of employment-related processes of wealth accumulation for individuals taking place either in Eastern or Western Germany, we exclude immigrants and persons who were living abroad in 1989. Our analytical sample includes 1,403 men and 1,668 women in Eastern Germany and 3,756 men and 4,008 women in Western Germany. The average age is 68.4 years (SD ± 7.4).

3.2 Operationalisation

The outcome variable individual net wealth measures the sum of all wealth (real and financial assets, private pension plans, life insurance, business assets, tangible assets) minus debts solely owned by an individual, as well as the individual's share of jointly owned wealth. We draw on all wealth measures the respondents provided during retirement and calculate the mean for every

respondent over all times of measurement (up to four) in order to reduce the potential influence of single years of over- or underreporting. We top- and bottom-code the extreme 0.1 per cent of the reported wealth values and adjust them for inflation. We apply an inverse hyperbolic sine (IHS) transformation to adjust for the right-skewed distribution of wealth, which includes negative and zero values (the results were robust to using a ranked wealth transformation, see Figures B11 and B12 in the online appendix). Furthermore, we divide net wealth into owner-occupied housing net wealth (less owner-occupied mortgages) and non-housing net wealth (less all remaining liabilities), as housing has several unique characteristics. Irrespective of the homeownership structures, primary housing usually provides shelter for both spouses. Housing is commonly jointly owned by both spouses and constitutes their largest investment (Rossi and Sierminska, 2018: 55–83).

The main explanatory variables consist of clusters of retrospective employment trajectories, which we describe in more detail in the next section. Retrospective employment trajectories are collected in the second year of survey participation, using retrospective biographical questionnaires. Afterwards, this information is updated annually, based on prospective information. We include the age range from 20 to 55 to cover large parts of respondents' employment biographies.[10] Employment trajectories include the seven states "education/training", "full-time employment", "part-time employment", "unemployment", "homemaking", "retirement", and "other" (including paternal and sick leave; see Section A1 in the online appendix for further details).

We add the control variables age, age squared, years since retirement, and educational status (no degree, lower secondary, middle school, secondary technical, upper secondary). To account for the relevance of inheritances for wealth accumulation, we also control for individual inheritances

[10] Extending the upper age limit to 65 substantially reduces the sample size. Additional analyses provide employment clusters and results similar to 55 as upper age limit (Figures B16 and B17 in the online appendix).

(IHS-transformed), measured as the sum of inheritances received over the life course.[11] As individuals' careers proceed in different historical contexts, we distinguish between four different birth cohorts. Due to sample size restrictions in both the youngest and oldest cohorts, we use the birth cohorts 1903–1929, 1930–1939, 1940–1949, and 1950–1961. Further, we control for mothers' and fathers' education (no degree, lower secondary, middle school, upper secondary), as well as their birth cohorts (<1900, 1900–1919, 1920–1945), and the number of siblings, as siblings may constrain the transmission of parental resources (Lersch, 2019). We also control for region type during childhood (urban/rural) because wealth accumulation differs by the degree of urbanization due to higher housing prices in urban areas.

3.3 Method

We use sequence and cluster analyses to determine the similarity of employment sequences and identify main patterns of employment trajectories in both contexts. By including employment trajectories as predictors in multivariable Ordinary Least Squares (OLS) regression models, we estimate how these patterns are associated with wealth at older ages.[12]

Sequence analysis takes a holistic perspective that allows us to trace career trajectories while focusing on dynamic processes that remain hidden in other longitudinal approaches (Abbott, 1992, 1995). We conduct sequence analysis based on the Dynamic Hamming Distance (DHD) that derives costs based on transition rates while being highly time-sensitive (Lesnard, 2010). Therefore, sequence analysis is more suitable for examining timing and ordering of the sequences than latent class analysis, which does not consider the ordering of the states due to its local independence assumption (Han, Liefbroer and Elzinga, 2017). We apply hierarchical cluster analysis to combine employment trajectories in internally homogeneous and externally

[11] We conducted an additional set of regression analyses without inheritances to examine the associations of employment clusters and wealth separately (Figures B7 and B8 in the online appendix). The results are in line with our main specification.

[12] In the regression models, we do not account for the fact that the formation of the employment clusters itself is based on implicit clustering rules, thereby potentially underestimating standard errors. With fuzzy clustering, sequence analysis aims to overcome this problem by allowing multiple cluster memberships (Studer, 2018). The results provided by the fuzzy cluster solutions are substantially similar to our main findings (see Figures B13 to B15 in the online appendix).

heterogeneous clusters (Ward, 1963). We consider the average width silhouette and several other indicators combined with theoretical interpretation and sample size restrictions for sound typology decisions (see Figure A1 in the online appendix and Studer (2013) for a detailed explanation). We extract a four-cluster cluster solution for men in Western, a five-cluster solution for men in Eastern, a six-cluster solution for women in Western, and a five-cluster solution for women in Eastern Germany. Descriptive statistics on these clusters can be found in Tables A1 and A2 in the online appendix.

We conduct several supplementary analyses. First, as pensions play a major role for the economic situation of retirees in Germany, we estimate augmented wealth, defined as the sum of net wealth and pension wealth (for a detailed explanation, see Section B1 in the online appendix). We aim to depict retirees' economic well-being holistically to draw more detailed conclusions about the employment clusters in which individuals might be able to draw on pension income in addition to their assets. Pension wealth is the sum of current values of statutory-pension, civil-servant, and company-pension entitlements adjusted for average survival probabilities and the real interest rate (Bönke et al., 2018). Second, we include the male spouse's employment cluster to examine his role in the association of women's employment cluster and individual wealth at older ages. Despite the legal separation of property in Germany, individuals may participate in their spouses' wealth accumulation. The extent of spouses' economic interdependence might be driven not only by marriage per se but also by their employment biographies.

4 Results

4.1 Employment trajectories

The employment trajectories of men and women (Figures 1 and 2) are displayed in relative frequency sequence plots, showing a set of representative subsequences of each cluster (Fasang and Liao, 2014).[13] For example, the first horizontal line in the cluster "full-timers" in Figure 1

[13] Summary statistics on the representativeness of each subsequence and further explanations can be found in Figures A2 to A5 and in Section A2 in the online appendix.

(left panel) depicts a representative employment biography ("medoid") from age 20 to 55 of a man in Western Germany who was continuously full-time employed before being unemployed from age 50 onwards. Medoids depict trajectories of individuals with representative or "average" sequences; that is, they are most similar to the other sequences in their respective cluster. Presenting the clusters with medoids provides an easily interpretable picture while reducing the influence of data noise and outliers (Fasang and Liao, 2014).

Men's careers are characterized by a strong labour market attachment. With 69 (Western) and 52 per cent (Eastern Germany), full-timers represent the largest clusters among men, followed by men with extended periods of education (around 20 per cent in both contexts). The cluster of 50+ dropouts in Eastern Germany is characterized by leaving the labour market into unemployment or retirement early, mostly between ages 50 and 55. At around 15 per cent, the cluster illustrates the high instability on the Eastern German labour market after reunification and the increasing incentives to retire early (Grabka, 2014). Men in the clusters "early retirees" (6 per cent in Western, 5 per cent in Eastern Germany) and "weak labour market attachment" (4 per cent) or "long-term unemployment" (8 per cent) left the labour market even earlier.

Women's employment trajectories are more diverse than those of men. At 53 per cent, full-time employees are the largest group among Eastern German women, whereas this group is considerably smaller in Western Germany (21 per cent). Homemaking (29 per cent), part-time employment (18 per cent), or a combination of the two (13 per cent) are more common in Western than in Eastern Germany (9 per cent part-timers and homemakers). Around 8 per cent of women in Western Germany transition from full-time into part-time employment or homemaking during their thirties before returning to full-time employment later. Similar to men, women in Eastern Germany are affected by early dropouts into part-time and unemployment (12 per cent) or early retirement and unemployment (16 per cent) at later career stages. Among women in Western Germany, approximately 11 per cent retire early from full-time employment. The cluster compositions reflect strong institutional differences, with women in Eastern Germany being more strongly attached to the labour market. Most women in Western Germany take over the role of

secondary earners and homemakers, which can be related to a lack of childcare facilities, together with tax benefits favouring a traditional division of labour.

4.2 Net wealth of men and women in Eastern and Western Germany

Table 1 provides an overview of the average and median net wealth of retired men and women in Eastern and Western Germany. The large differences between median and average net wealth illustrate the skewed distribution of high wealth inequality in Germany. Men in Western Germany have the highest average net wealth, at around EUR 175,000 (median: EUR 95,000), whereas it is lowest among women in Eastern Germany, at EUR 33,000 (median: EUR 9,000). The average wealth gap between Eastern and Western Germany is approximately EUR 216,000 in the underlying sample. With a median of zero, most men and women in Eastern Germany do not own any housing assets (see Table A3 in the online appendix). The level of wealth also differs strongly between employment clusters. On average, highly educated men own the highest amount of wealth (EUR 316,000 in Western, EUR 62,000 in Eastern Germany). Among women, part-timers own the highest average net wealth in Western Germany (EUR 143,000) and full-timers in Eastern Germany (EUR 37,000).

4.3 Multivariable results: Employment clusters and wealth

Figures 3 and 4 show the results of multivariable OLS regressions, including the employment clusters, as predictors of IHS-transformed wealth at older ages by gender in Eastern and Western Germany. The reference cluster in all models are full-timers of the respective subgroup. The coefficients can be interpreted similarly to regressions with logged outcomes (Friedline, Masa and Chowa, 2015).

For men in Western Germany, the long-term absence from the labour market results in a great disadvantage in terms of all wealth components. Early retirees in Western Germany have around 88 per cent (= 100 × [exp(-2.13) – 1]) less IHS-transformed net wealth than full-timers. Similarly, they have around 72 per cent less housing and 88 per cent less non-housing wealth than full-timers.

Figure 1 Relative frequency sequence plots of men's employment trajectories in Western and Eastern Germany

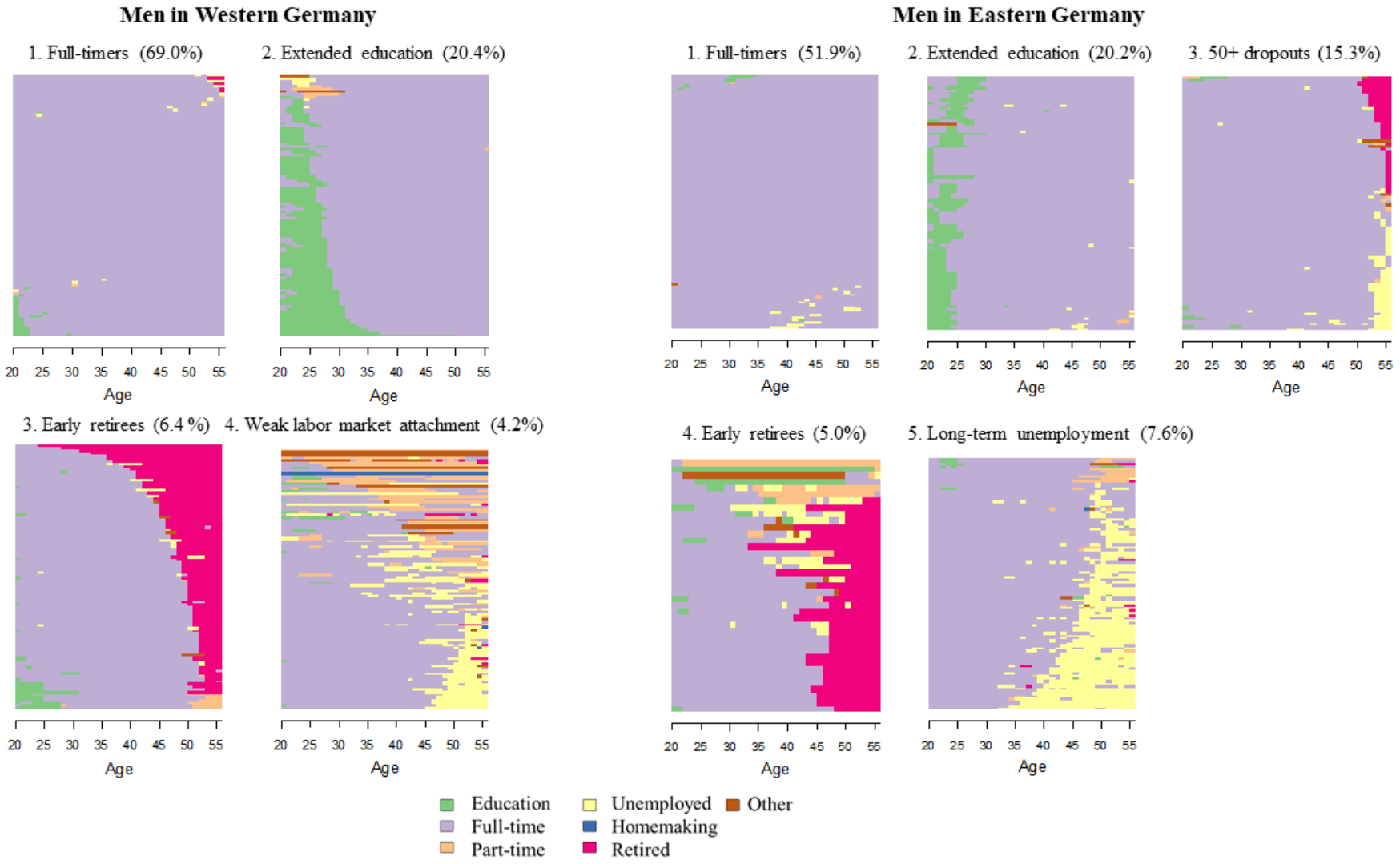


Figure 2 Relative frequency sequence plots of women's employment trajectories in Western and Eastern Germany

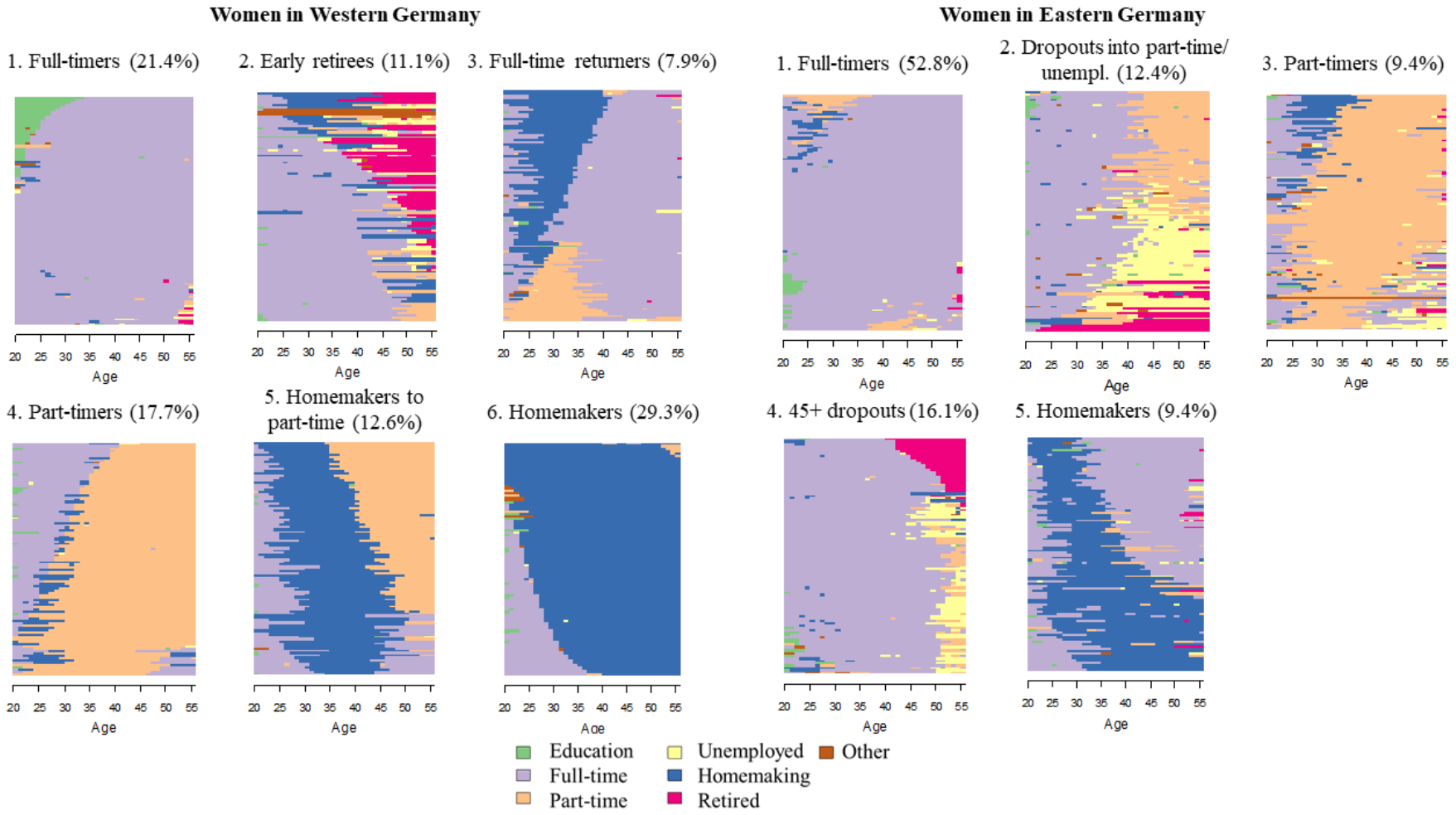


Table 1 Mean and median individual net wealth (in thousand EUR) at older ages for retired men and women aged 56 and older in Western and Eastern Germany by employment cluster

Western Germany			Eastern Germany		
	Mean (SE)	Median (SE)		Mean (SE)	Median (SE)
Men:			*Men:*		
Full-timers	147	86	Full-timers	39	14
	(276)	(3)		(60)	(2)
Extended education	316	180	Extended education	62	32
	(508)	(8)		(97)	(4)
Early retirees	101	33	50+ dropouts	32	7
	(204)	(13)		(58)	(3)
Weak labour market attachment	72	0	Early retirees	29	5
	(175)	(1)		(48)	(6)
			Long-term unemployment	32	10
				(45)	(7)
All	175	95	All	42	15
	(338)	(3)		(68)	(2)
Women:			*Women:*		
Full-timers	142	56	Full-timers	37	11
	(31)	(8)		(73)	(1)
Early retirees	95	12	Dropouts into part-time/ unemployment	31	7
	(22)	(5)		(51)	(3)
Full-time returners	96	27	Part-timers	27	9
	(16)	(9)		(41)	(3)
Part-timers	143	78	45+ dropouts	30	8
	(22)	(8)		(54)	(2)
Homemakers to part-time	109	57	Homemakers	22	4
	(160)	(12)		(44)	(2)
Homemakers	98	24			
	(156)	(7)			
All	116	43	All	33	9
	(22)	(4)		(63)	(4)

Note: Authors' calculations. Untransformed wealth (in thousand EUR). Standard errors of the median are calculated using the bootstrap method, as the underlying distribution is not normal.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Considering men in Eastern Germany, we find that those with extended periods of education have slightly more net wealth than full-timers. This seems to be driven by the positive, although statistically nonsignificant, association with non-housing wealth. The remaining employment clusters are characterized by early labour market exits, which are negatively associated with wealth. Men dropping out of the labour market in their fifties have around 78 per cent less net wealth, while long-term unemployed men have around 92 per cent less net wealth than full-timers.

Similarly, although not statistically significant, early retirees have around 60 per cent less net wealth. The negative associations hold substantially for housing and non-housing wealth.

Overall, men's absence from the labour market is strongly negatively associated with wealth at older ages. The associations hardly differ between housing and non-housing wealth, indicating that employment is similarly related to the accumulation of different wealth components. Furthermore, the results indicate that deviations from a continuously full-time employed career are difficult to compensate for men in both contexts.

Among women in Western Germany, we find no statistically significant associations between employment clusters and net wealth. Early retirees have 61 per cent less wealth than full-timers, whereas full-time returners have 39 and homemakers 38 per cent less wealth than full-timers. At 15 per cent, part-timers are the only group with slightly more net wealth than female full-timers in Western Germany. Considering housing wealth, we find that traditional career paths of long-term part-time employment are statistically non-significantly associated, at 118 per cent more, and homemaking at 103 per cent more housing wealth than full-time employment. Similarly, homemakers who return to part-time employment have around 68 per cent more housing wealth. The weak labour market attachment comes at a price, however. Women retiring early have around 71, homemakers 77, and homemakers to part-time 60 per cent less non-housing wealth than full-timers. Although statistically non-significant, also full-time returners – that is, women returning into full-time employment after homemaking or part-time employment in their thirties – have around 52 per cent less non-housing wealth. Part-timers are the only group that is not strongly negatively associated with non-housing wealth.

For women in Eastern Germany, we find no statistically significant associations between employment clusters and net, housing, and non-housing wealth. Similar to men, women leaving the labour market early or transitioning to part-time employment at later career stages are slightly negatively associated with net wealth, which seems to be driven by the negative association with non-housing wealth. In contrast to Western Germany, part-timers have around 64 per cent less net wealth than full-timers in Eastern Germany. With around 60 per cent less housing and 59 per

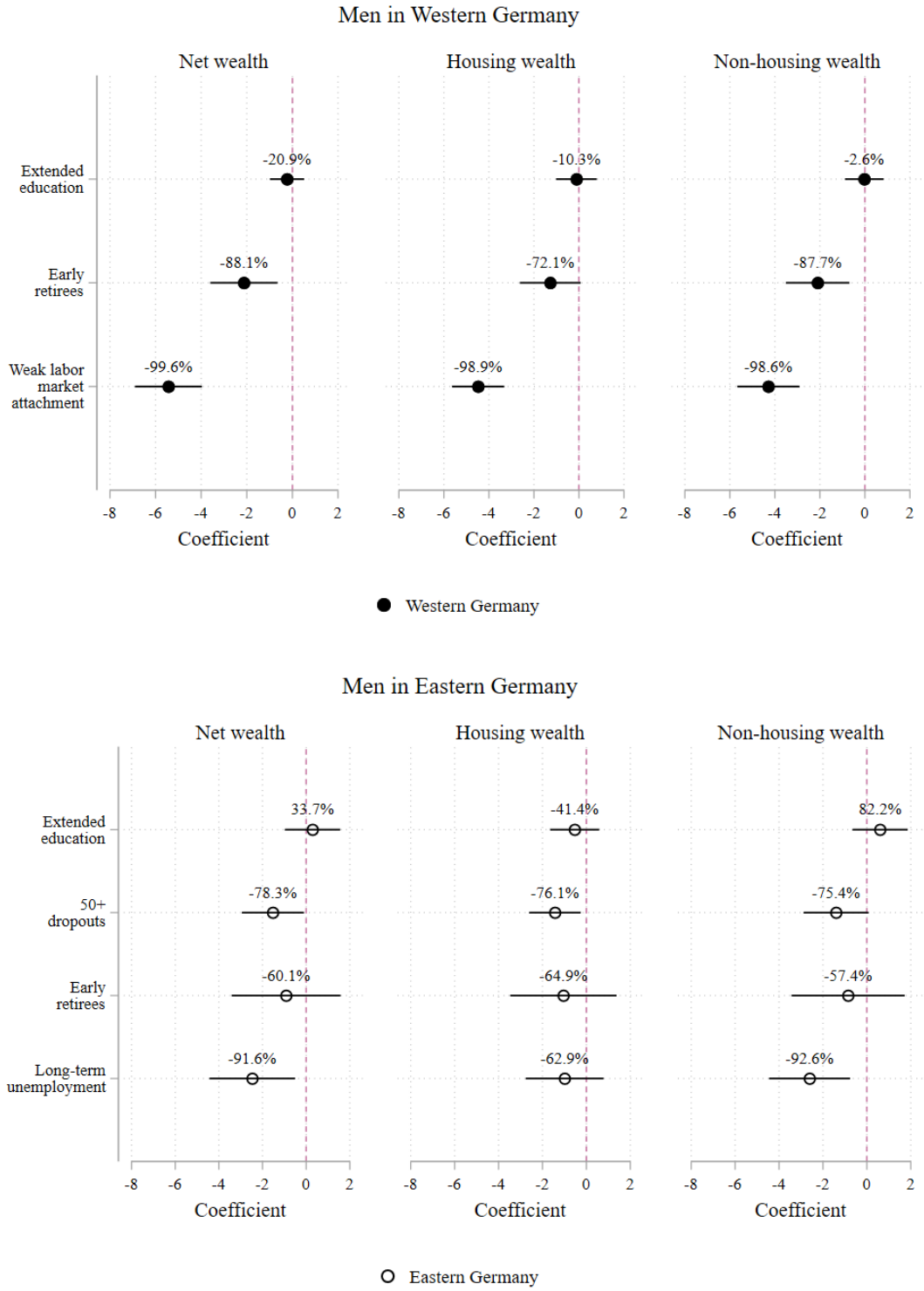
cent less non-housing wealth, part-timers are disadvantaged in both respects. Similar to women in Western Germany, homemakers in Eastern Germany have slightly more housing and less non-housing wealth than full-timers.

Overall, women's employment trajectories are less strongly associated with wealth at older ages than those of men, pointing towards the stronger relevance of (non-)employment for men's wealth accumulation. In Western Germany, women with traditional careers, characterized by homemaking and part-time employment, benefit in terms of housing wealth, whereas they are disadvantaged regarding non-housing wealth compared with full-timers. The results indicate that joint homeownership embedded in marriage is positively associated with female secondary earners' wealth accumulation. In line with our expectations, the association between employment and wealth is weaker in Eastern than in Western Germany, as people in the GDR were restricted in their ability to accumulate wealth by the socialist regime. It has to be noted that the reference groups of female full-timers are more heterogeneous in their demographic composition than male full-timers (see Tables A1 and A2 in the online appendix).

4.4 Supplementary analyses

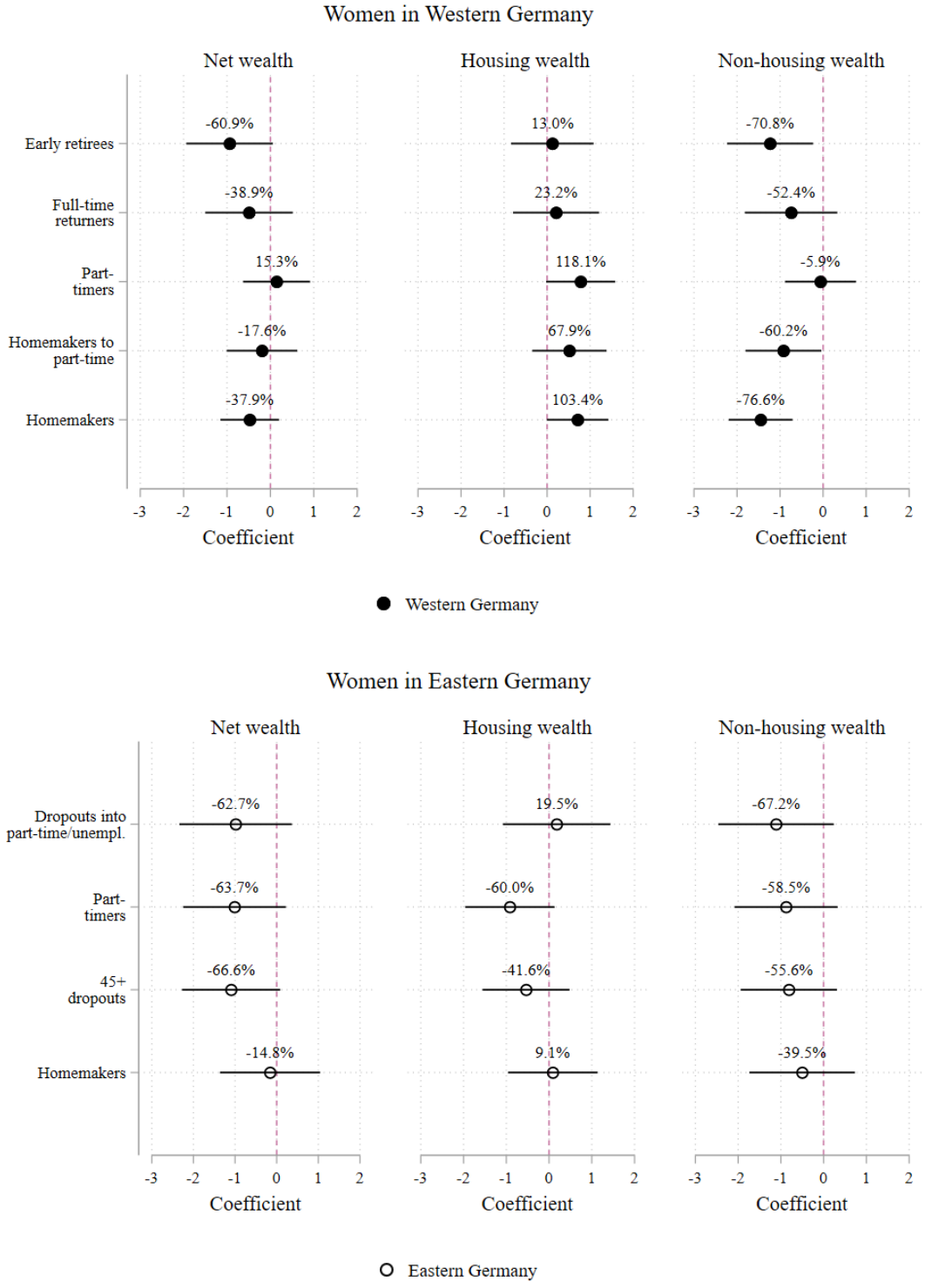
In order to depict retirees' holistic economic well-being, we estimate augmented wealth, defined as the sum of net wealth and pension wealth (Figures B1 and B2 in the online appendix). Because of the high relevance of statutory pensions in Germany, we examine whether the additional consideration of pension wealth adds to our assessment of retirees' economic situations. We find for men in both contexts that early retirement is positively associated with the overall level of pension wealth. This is because the estimate of public pension wealth increases with the length of the retirement period. Individuals who retire early receive monthly pension payments for a longer time than those who retire later in life, thereby accumulating higher overall levels of public wealth. In Eastern Germany, male and female labour market dropouts are positively, but statistically nonsignificantly, associated with pension wealth. They might have received comprehensive compensation payments following mass unemployment in the former GDR after reunification. Particularly in Western Germany, female homemakers acquired less pension and

Figure 3 Multivariable OLS regression models of employment clusters on individual wealth at older ages (net, housing, non-housing) for men in Western and Eastern German



Note: OLS regression models with reference category full-timers; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 per cent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(b) – 1]). Complete estimation results in Tables A4 and A5 in the online appendix.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure 4 Multivariable OLS regression models of employment clusters on individual wealth at older ages (net, housing, non-housing) for women in Western and Eastern Germany



Note: OLS regression models with reference category full-timers; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 per cent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]). Complete estimation results in Tables A6 and A7 in the online appendix.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

augmented wealth than full-timers. This indicates that homemakers' advantage in housing wealth in Western Germany cannot compensate for the economic disadvantage they experience overall through their low labour market participation.

Next, we add the male partners' employment clusters to explain the association of women's employment and wealth at older ages more thoroughly (Figures B3 and B4 in the online appendix). We find that not having a partner is negatively associated with women's net wealth, particularly for early retirees in Western Germany. Having a partner who has a weak labour market attachment is also negatively related to women's wealth. The results are in line with our expectations, suggesting that women's wealth accumulation also depends on the partners' economic contributions. Being single or having a partner who might not be able to provide financial support are both negatively associated with women's wealth at older ages.

The results are similar in additional robustness checks. First, restricting the sample to respondents who did not move between Eastern and Western Germany does not change the results substantially (Figures B5 and B6 in the online appendix). Second, adding interaction terms of employment clusters and birth cohorts shows small differences by gender and context (Figures B9 and B10 in the online appendix). The wealth benefits of full-time employed and highly educated men in Western Germany remain stable over time. For men in Eastern Germany, we find a U-shaped association with smaller wealth benefits in the middle birth cohorts between 1932 and 1951 that might coincide with reunification at later career stages and retirement. For women in both contexts, we find an inverse-U-shaped association, where women with weaker labour market participation (except homemakers) born after 1951 experience larger wealth reductions than older birth cohorts.

5 Conclusion

The long reach of (non-)employment may create wealth inequalities at older ages that become increasingly important in the context of re-marketisation of retirement provision in many developed welfare states (Ebbinghaus, 2015). Substantial gender disparities may arise from the

unequal potential to accumulate wealth for women and men. This study uses the example of Germany to examine the association between employment trajectories and individual wealth at older ages for men and women, highlighting structural context differences between Western and Eastern Germany that may moderate the link between employment and wealth accumulation. Using data from the SOEP, we identify distinct employment trajectories by employing sequence and cluster analysis and show their associations with individual wealth for men and women in both contexts.

Building on prior research on employment trajectories and pension income (such as Madero-Cabib and Fasang, 2016), we expected high labour market participation to be positively associated with wealth at older ages. We find this to be the case with continuously full-time employed men, who have higher wealth levels than early retirees and those with long-term disrupted careers. However, our results demonstrate that findings from the income literature cannot simply be transferred to wealth research. Wealth is not a direct function of income (Killewald et al., 2017), so individuals with similar earnings may end up with different levels of wealth. For women, the association between employment trajectories and wealth at older ages is less straightforward than in the case of pension income (Tophoven and Tisch, 2016). In line with our expectations, the association between employment and wealth is considerably smaller for women than for men. Compared with full-time employed women, a weak labour market attachment does not necessarily result in lower levels of wealth, however. In Western Germany, we find that homemakers and part-timers have more housing wealth than full-timers. For non-housing wealth, particularly women with long periods of homemaking face wealth disadvantages. Whereas Tophoven and Tisch (2016) do not find context differences in the association between employment trajectories and pension income between Eastern and Western Germany, our findings indicate that the association between employment and wealth at older ages is somewhat smaller in Eastern than in Western Germany.

Our results suggest that (non-)employment's long reach shapes the wealth position at older ages differently for men and women. Men as traditional main earners accumulate wealth more strongly tied to employment than women. Hence, deviations from continuous full-time employment result

in men's lower levels of wealth. In contrast, women's more restricted ability to accumulate wealth through employment might be driven by lower wages, job characteristics, and more risk-averse investment patterns compared with men (Grabka et al., 2015). In light of increasing female employment rates and wage adjustments, however, it remains open whether women will adapt to male patterns of wealth accumulation in future cohorts.

The gendered ways of wealth accumulation become particularly present when differentiating between housing and non-housing wealth. We find that part-time employed and homemaking women benefit in terms of housing wealth compared with full-timers in Western Germany. Hence, women may, paradoxically, benefit from marriages with a traditional division of labour through the redistributive character of jointly owned housing wealth. However, women's gender-traditional employment patterns are negatively associated with non-housing and pension wealth, which puts women with a low labour market participation at an overall wealth disadvantage. In addition, they are restricted in their economic self-reliance and strongly dependent on their partners, as they cannot easily liquefy the jointly owned housing. Beyond the ownership of assets, it is however unclear how women benefit economically through their partners' wealth holdings. Future research should therefore aim to better understand the role the type of asset ownership assets plays for individuals' economic well-being within couples.

For individuals in Eastern Germany, the associations between employment and wealth are somewhat smaller than in Western Germany, indicating that the socialist regime of the GDR restricted people's ability to accumulate wealth through lower incomes and a lack of wealth-building products, such as private pensions. This can be seen in the substantially lower wealth holdings of Eastern Germans, with an average wealth gap of around EUR 216,000 in the underlying sample. Whereas employment biographies are of low relevance for Eastern German women's wealth accumulation, we find that the receipt of inheritances creates a wealth advantage. Further, individuals' savings behaviour in post-socialist Eastern Germany is characterized by a lower willingness to invest in wealth-building products and a lower financial literacy compared with their Western German counterparts (Bucher-Koenen and Lamla-Dietrich, 2018). Our

findings additionally suggest that Eastern Germans primarily invest in non-housing wealth, whereas Western Germans invest in both housing and non-housing assets.

We also find less pronounced gender wealth differentials among individuals in Eastern than in Western Germany. In contrast to the more gender-egalitarian east, individuals in the Western German male breadwinner context seem to favour gender-specific investment patterns. This is in line with Bucher-Koenen and Lamla-Dietrich (2018), who found similar levels of financial literacy among men and women in Eastern Germany, whereas men in Western Germany are on average more financially knowledgeable than women. Overall, we show that the interplay of institutional regulations and prevalent gender norms do not only shape individuals' employment trajectories but also their processes of wealth accumulation.

Our empirical approach using data on individual-level wealth at older ages, combined with long-term employment biographies, generates important insights, but some limitations of our study need to be acknowledged. First, while we consider important characteristics of individuals' employment trajectories, our data do not allow us to differentiate other meaningful aspects, such as income, self-employment, occupational prestige, or consumption preferences, which have distinct influences on wealth accumulation (see, for example, Grabka et al., 2015). For the self-employed, private wealth accumulation is particularly important because they do not contribute to the public pension system in Germany. Second, our study is subject to the usual limitations of wealth analyses, with large measurement error and lacking coverage of the top of the wealth distribution. Among couples, measuring wealth at the individual level involves the risk of a discrepancy between legal and perceived ownership, especially if the original ownership structures are confused due to different patterns of control.

An important avenue for future research on the determinants of individual wealth is the empirical consideration of combined work–family trajectories. In the current study, we lay the ground for future work by thoroughly examining the link between employment and wealth at older ages and, additionally, incorporating the household level in our conceptual and analytical framework. Our supplementary analyses underline the relevance of the male partners' employment trajectories

that partly explain women's association of employment and wealth. Having no partner or a partner with a weak labour market attachment is negatively associated with women's wealth at older ages. As especially women's employment is closely related to their marital status, considering these interrelated trajectories jointly may foster a deeper understanding of the underlying social processes accompanying wealth accumulation.

The birth cohorts we study are only moderately affected by the reduction in public pension provision in Germany. Later-born cohorts face an increasing need for private provision as the pension systems in Germany and elsewhere are further reformed to meet the challenges of population ageing. Thus, the long reach of employment for wealth at older ages becomes more relevant to our understanding of social disparities in post-industrialized societies.

6 Bibliography

Aassve, A., Billari, F. C. and Piccarreta, R. (2007). Strings of adulthood: A sequence analysis of young British women's work-family trajectories. *European Journal of Population*, **23**, 369–388.

Abbott, A. (1995): Sequence analysis: New methods for old ideas. In: *Annual Review of Sociology,* **21**, 93–113.

Abbott, A. (1992). From causes to events: Notes on narrative positivism. *Sociological Methods & Research*, **20**, 428–455.

Aisenbrey, S. and Fasang, A. E. (2017). The interplay of work and family trajectories over the life course: Germany and the United States in comparison. *American Journal of Sociology*, **122**, 1448–1484.

Amuedo-Dorantes, C., Bonke, J. and Grossbard, S. (2010). *Income pooling and household division of labour: Evidence from Danish couples*, IZA Discussion Paper No. 5418.

Bennett, F. (2013). Researching within-household distribution: Overview, developments, debates, and methodological challenges, *Journal of Marriage and Family,* **75**, 582–597.

Bönke, T., Grabka, M. M., Schröder, C., Wolff, E. N. and Zyska, L. (2018). The joint distribution of net worth and pension wealth in Germany, *Review of Income and Wealth,* **0**, 1–38.

Bucher-Koenen, T. and Lamla-Dietrich, B. (2018). The long shadow of socialism: Puzzling evidence on East-West German differences in financial literacy, *Economic Notes,* **47**, 413–438.

Burdumy, A. (2013). Reconsidering the role of the welfare state within the German Democratic Republic's political system, *Journal of Contemporary History*, **48**, 872–889.

Carman, K. G. and Hung, A. A. (2017). *Household retirement saving: The location of savings between spouses,* RAND Labour & Population.

Chang, M. L. (2010). *Shortchanged: Why women have less wealth and what can be done about it*. New York: Oxford University Press.

Damaske, S. and Frech, A. (2016). Women's work pathways across the life course. *Demography*, **53**, 365–391.

Deere, C. D. and Doss, C. R. (2006). The gender asset gap: What do we know and why does it matter? *Feminist Economics,* **12**, 1–50.

Delfani, N., Deken, J. de and Dewilde, C. (2015). Poor because of low pensions or expensive housing? The combined impact of pension and housing systems on poverty among the elderly. *International Journal of Housing Policy*, **15**, 260–284.

Ebbinghaus, B. (2015). The privatization and marketization of pensions in Europe: A double transformation facing the crisis, *European Policy Analysis,* **1**, 56–73.

Fasang, A. E., Aisenbrey, S. and Schömann, K. (2013). Women's retirement income in Germany and Britain, *European Sociological Review,* **29**, 968–980.

Fasang, A. E. and Liao, T. F. (2014). Visualizing sequences in the social sciences: Relative frequency plots, *Sociological Methods & Research,* **43**, 643–676.

Fessler, P. and Schürz, M. (2018). Private wealth across European countries: The role of income, inheritance and the welfare state. *Journal of Human Development and Capabilities*, **19**, 521–549.

Frick, J. R., and Grabka, M. M. (2009). Zur Entwicklung der Vermögensungleichheit in Deutschland, *Berliner Journal für Soziologie,* **19**, 577–600.

Friedline, T., Masa, R. D. and Chowa, G. A. (2015). Transforming wealth: Using the inverse hyperbolic sine (IHS) and splines to predict youth's math achievement, *Social Science Research,* **49**, 264–287.

Gangl, M. (2006). Scar effects of unemployment: An assessment of institutional complementarities, *American Sociological Review,* **71**, 986–1013.

Goebel, J., Grabka, M. M., Liebig, S., Kroh, M., Richter, D., Schröder, C. and Schupp, J. (2019). The German Socio-Economic Panel Study (SOEP), *Jahrbücher für Nationalökonomie und Statistik/Journal of Economics and Statistics,* **239**, 345–360.

Grabka, M. M. (2014). Private Vermögen in Ost- und Westdeutschland gleichen sich nur langsam an, DIW Wochenbericht 40/2014, 959-966.

Grabka, M. M. and Halbmeier, C. (2019). *Vermögensungleichheit in Deutschland bleibt trotz deutlich steigender Nettovermögen anhaltend hoch*, DIW Wochenbericht 86/2019, 735-745.

Grabka, M. M., Marcus, J. and Sierminska, E. (2015). Wealth distribution within couples, *Review of Economics of the Household*, **13**, 459–486.

Grabka, M. M. and Westermeier, C. (2015). *Editing and multiple imputation of item non-response in the wealth module of the German Socio-Economic Panel*, SOEP Survey Papers 272, DIW, Berlin.

Halpern-Manners, A., Warren, J. R., Raymo, J. M. and Nicholson, D. A. (2015). The impact of work and family life histories on economic well-being at older ages, *Social Forces,* **93**, 1369–1396.

Han, Y., Liefbroer, A. C. and Elzinga, C. H. (2017). Comparing methods of classifying life courses: Sequence analysis and latent class analysis, *Longitudinal and Life Course Studies*, **8**, 319–341.

Hauser, R., Glatzer, W., Hradil, S., Kleinhenz, G., Olk, T. and Pankoke, E. (1996). *Ungleichheit und Sozialpolitik. Bericht 2.* Opladen: Leske + Budrich.

Jäntti, M., Sierminska, E. M. and van Kerm, P. (2015). Modelling the joint distribution of income and wealth, *Research on Economic Inequality*, **23**, 301–327.

Joseph, R. and Rowlingson, K. (2012). Her house, his pension? The division of assets among (ex-)couples and the role of policy, *Social Policy and Society,* **11**, 69–80.

Killewald, A., Pfeffer, F. T. and Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual Review of Sociology*, **43**, 379–404.

Lersch, P. M. (2019). Fewer siblings, more wealth? Sibship size and wealth attainment, *European Journal of Population*, published online, 1–28.

Lesnard, L. (2010). Setting cost in optimal matching to uncover contemporaneous socio-temporal patterns, *Sociological Methods & Research*, **38**, 389–419.

Madero-Cabib, I. and Fasang, A. E. (2016). Gendered work–family life courses and financial well-being in retirement, *Advances in Life Course Research,* **27**, 43–60.

Mayer, K. U. (2009). New directions in life course research, *Annual Review of Sociology,* **35**, 413–433.

Mayer, K. U. (2005). Life courses and life chances in a comparative perspective. In Svallfors, S. (Ed.), *Analyzing inequality: Life chances and social mobility in comparative perspective*. Palo Alto, CA: Stanford University Press, pp. 17–55.

McMunn, A., Lacey, R., Worts, D., McDonough, P., Stafford, M., Booker, C., Kumari, M. and Sacker, A. (2015). De-standardization and gender convergence in work–family life courses in Great Britain: A multi-channel sequence analysis. *Advances in Life Course Research*, **26**, 60–75.

Möhring, K. (2017). Is there a motherhood penalty in retirement income in Europe? The role of lifecourse and institutional characteristics. *Ageing and Society*, **38**, 1–30.

Möhring, K. (2014). Employment histories and pension incomes in Europe: A multilevel analysis of the role of institutional factors, *European Societies,* **17**, 3–26.

Ozturk, G. B. and Gallo, W. T. (2013). *Effect of job loss on wealth accumulation of older workers,* CUNY School of Public Health at Hunter College.

Pfeffer, F. T. and Waitkus, N. (2019). *The wealth inequality of nations*, The Inequality Lab. Discussion Paper 2019-2.

Ponomarenko, V. (2017). *Wealth accumulation over the life course. The role of disadvantages across the employment history*, University of Luxembourg, available from: <https://orbilu.uni.lu/handle/10993/29219> [accessed 11 June 2019].

Ponomarenko, V. (2016). Cumulative disadvantages of non-employment and non-standard work for career patterns and subjective well-being in retirement. *Advances in Life Course Research*, **30**, 133–148.

Rosenfeld, R. A., Trappe, H. and Gornick. J. C. (2004). Gender and work in Germany: Before and after reunification, *Annual Review of Sociology,* **30**, 103–124.

Rossi, M. and Sierminska, E. (2018). *Wealth and homeownership: Women, men, and families*. Basingstoke: Palgrave Macmillan.

Semyonov, M. and Lewin-Epstein, N. (2013). Ways to richness: Determination of household wealth in 16 countries. *European Sociological Review*, **29**, 1134–1148.

Skopek, N., Buchholz, S. and Blossfeld, H.-P. (2014). National patterns of income and wealth inequality. *International Journal of Comparative Sociology,* **55**, 463–488.

Sierminska, E., Piazzalunga, D. and Grabka, M. M. (2018). Transitioning towards more equality? Wealth gender differences and the changing role of explanatory factors over time, *LISER Luxembourg Institute of Socio-Economic Research*.

Sierminska, E., Frick, J. R. and Grabka, M. M. (2010). Examining the gender wealth gap, *Oxford Economic Papers*, **62**, 669–690.

Simonson, J., Gordo, L. R. and Kelle, N. (2015). Separate paths, same direction? De-standardization of male employment biographies in East and West Germany, *Current Sociology*, **63**, 387–410.

Simonson, J., Gordo, L. R. and Titova, N. (2011). Changing employment patterns of women in Germany: How do baby boomers differ from older cohorts? A comparison using sequence analysis, *Advances in Life Course Research*, **16**, 65–82.

Spilerman, S. (2000). Wealth and stratification processes, *Annual Review of Sociology,* **26**, 497–524.

Studer, M. (2018). Divisive property-based and fuzzy clustering for sequence analysis. In Ritschard, G. and Studer, M. (Eds.) *Sequence analysis and related approaches: Innovative methods and applications*. Cham: Springer, pp. 223-239.

Studer, M. (2013). *WeightedCluster library manual: a practical guide to creating typologies of trajectories in the social sciences with R*, Working Paper 24, Geneva: Swiss National Center of Competence in Research LIVES.

Szydlik, M. (2004). Inheritance and inequality: Theoretical reasoning and empirical evidence, *European Sociological Review*, **20**, 31–45.

Tiefensee, A. (2017). *Wie lange reicht das Vermögen bei Einkommensausfall? WSI-Verteilungsbericht*, WSI-Mitteilungen, 70, 597–604.

Tophoven, S. and Tisch, A. (2016). Employment trajectories of German baby boomers and their effect on statutory pension entitlements, *Advances in Life Course Research,* **30**, 90–110.

Ward, J. H. (1963). Hierarchical grouping to optimize an objective function, *Journal of American Statistical Association,* **58**, 236–244.

Weisshaar, K. and Cabello-Hutt, T. (2020). Labor force participation over the life course: The long-term effects of employment trajectories on wages and the gendered payoff to employment. *Demography*, **57**, 33–60.

CHAPTER 3

IN SOLE OR JOINT NAMES?

THE ROLE OF EMPLOYMENT AND MARRIAGE BIOGRAPHIES FOR MARRIED WOMEN'S ASSET OWNERSHIP IN LATER LIFE

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Abstract: The way women hold assets (solely or jointly) within couples is a crucial dimension of their economic well-being. This study examines the distribution of women's assets within married couples and how the interplay of their employment and marriage biographies is related to their asset holdings in later life. Using data from the Socio-Economic Panel Study (SOEP; 2002, 2007, 2012, 2017), the author applies multichannel sequence and cluster analyses to examine patterns of female employment-marriage biographies in Western Germany. Fractional logit and ordinary least square regression models are utilised to predict the share and the level of women's sole and joint assets within couples. The findings show that the majority of married couples build strong economic units, holding most of their assets jointly. The share of sole and joint assets however varies considerably across couples, being lowest in couples with long-term female homemakers. Women's sole wealth accumulation is found to require stable full-time employment, whereas the access to joint investments is defined by long-time employment arrangements of any type embedded in stable marriages from early in life on. In remarriages or late marriages, in contrast, women's joint wealth holdings are reduced. However, this lack cannot be compensated by increased investments in sole wealth, leaving them with overall lower levels of wealth than stable or early married women. This study indicates that women's financial independence provided by their high labour market participation does not reduce the economic togetherness within marriage.

1 Introduction

Whereas prior literature has widely examined the distribution of income within couples (Burgoyne et al., 2010; Pepin, 2019; Vogler et al., 2006), a within-couple perspective on the distribution of wealth has been less common. Following the widespread notion of marital resource pooling, wealth is typically understood and measured as a characteristic of the household (Killewald et al., 2017). To obtain per-capita measures of wealth, wealth research thus commonly assumes that wealth is pooled equally within the household. Nascent research has, however, repeatedly shown that couples do not equally pool their wealth, providing evidence for considerable within-couple wealth inequality in favour of men in many western countries, including Germany (e.g., Grabka et al., 2015; Lersch, 2017a; Sierminska et al., 2018). As a consequence, studies using household-level wealth measures tend to underestimate overall wealth inequality (Frémeaux & Leturcq, 2020).

Examining wealth inequality within couples, most prior literature relied on personal wealth as the sum of individually held plus the share of jointly held assets (e.g., Grabka et al., 2015; Sierminska et al., 2018). To better understand the determinants of personal wealth, further studies differentiated between distinct wealth components, such as housing or financial wealth (e.g., Kapelle & Lersch, 2020; Nutz & Lersch, 2021). However, a more detailed examination of the way individuals hold their assets within the couple as additional dimension of their economic situations has received little attention. In light of trends towards individualisation within marriage, it further remains unclear to what extent wealth sharing varies between couples. In this study, I therefore distinguish between sole and joint assets, defined as personal gross wealth individuals hold either individually or together with their partners. This differentiation is important because the type of wealth ownership entails different risks and benefits. Whereas the sole ownership of assets grants economic independence and sole decision-making power, carrying the risks resulting from asset ownership alone, such as repaying a credit or covering maintenance costs, can impair economic well-being. Joint assets, in return, express economic togetherness, enable larger investments by pooling two potential incomes, and facilitate the redistribution of wealth between

partners. However, a wealth portfolio dominated by sole wealth might increase economic insecurity, whereas the exclusive concentration on joint property might increase the risk of undesired economic dependency on the partner.

Due to the cumulative nature of wealth, different biographies are likely to create pronounced differences in asset holdings in later life (Halpern-Manners et al., 2015; Nutz & Lersch, 2021). Particularly employment defines individuals' access to economic resources and therefore their processes of wealth accumulation over the career. Whereas most men tend to remain constantly employed throughout working life, women's employment biographies are more diverse and characterised by transitions between different employment states and frequent career disruptions (Nutz & Lersch, 2021). To explain the within-couple distribution of sole and joint assets in later life, I take a female perspective in this study because the heterogeneity in women's careers should considerably account for these wealth outcomes at the couple level. Focusing on women's wealth holdings in later life stages is also relevant because within-couple wealth inequality at this point likely lasts throughout retirement, a life phase in which asset ownership is crucial to compensate for the loss of labour earnings. The research questions of this study therefore ask: 1) *How are women's sole and joint assets distributed within married couples in later life?* and 2) *How is the interplay of women's employment and marriage biographies associated with the ownership structure of sole and joint assets within these couples?*

To answer these questions, this study considers women aged 50 years and older and draws on comprehensively measured individual-level wealth data on Western Germany from the German Socio-Economic Panel (SOEP). Western Germany is a particularly interesting country case to study the distribution of sole and joint wealth within couples. Whereas the conservative German welfare state with its familistic policies strongly incentivises joint investments, the default matrimonial property regime, the *community of accrued gains*, promotes sole investments within marriage. Similar to most western countries and against common perceptions of marital pooling, personal wealth remains in separate ownership during marriage in Germany. Upon divorce, assets accrued during marriage (excluding inheritances and transfers) are distributed equally among both spouses under the German default property regime. Thus, individuals have no property rights over

their spouses' solely held assets and can be excluded from any wealth benefits, such as the usage of the spousal house.

Beyond examining the largely unconsidered distribution of wealth within couples, this study adds two specific contributions to the current state of research. First, it combines long-term biographies with comprehensive asset measures in later life to examine the outcomes of married women's wealth accumulation processes throughout their employment in interplay with their marriage biographies. Prior research has explored a wide range of wealth determinants, considering either single-dimension determinants over time, such as trends throughout marriage, or summary measures, such as years in full-time employment or the number of marriages (Halpern-Manners et al., 2015; Knoll et al., 2012; Lersch, 2017a; Yilmazer & Lyons, 2010). Using multichannel sequence analysis, I extend prior literature by combining multiple predictors of wealth with a long-term perspective that takes into account women's life courses from ages 18 to 49.

Second, to examine the distribution of wealth within households, prior research has either focused on the mere ownership of sole or joint wealth (Kan & Laurie, 2014; Lersch & Vidal, 2016) or the share of solely held wealth (Frémeaux & Leturcq, 2020). To adequately assess the economic situation of women within marriage, the present study integrates two perspectives on the distribution of wealth within couples. On the one hand, I examine the predictors of women's sole and joint asset *shares* within the couple as a measure that is also determined by the male partners' assets. The share provides insights into the degree of economic (inter)dependence within the partnership. Whereas the concentration of sole assets provides insights about the degree of economic dependency, the share of jointly held wealth additionally informs about the degree of togetherness. On the other hand, as the shares do not provide information about the absolute level of resources, the second set of outcomes additionally considers women's *level* of sole and joint assets. The wealth level provides information about the absolute level of financial means women have at their disposal. Together, these measures allow a holistic view on the distribution of assets and the degree of economic interdependence among both spouses.

2 Background

The accumulation of wealth is a long-term process that proceeds in three major pathways, which are differently related to the generation of sole and joint wealth. First, individuals self-accumulate wealth by saving or investing surplus income. Also, employment-related benefits that supplement earnings can promote the accumulation of wealth. Individuals can either invest in sole or joint assets, which are mostly held together with the partner. Some wealth components, for instance most types of pension wealth, can only be held in individual names, whereas others, such as savings, can be held either solely or jointly. The most widespread jointly held asset is housing, which is also most couples' largest investment (Rowlingson & Joseph, 2010). Second, individuals build up wealth by receiving financial transfers in the form of inheritances or *inter vivos* transfers. Financial transfers are mainly received by one partner only and remain in their sole ownership within marriage per default in most western countries, including Germany. Third, both sole and joint wealth replicate exponentially through the compound interest effect.

2.1 Employment and marriage biographies and wealth in later life

Both employment and marriage biographies are interlinked in shaping the way of sole and joint wealth holdings within couples in later life. Whereas joint investments likely require the presence of a partner, the accumulation of sole wealth is more strongly associated with own employment. Recent research has shown that career paths characterised by high labour market participation are positively related to personal net wealth in later life (Nutz & Lersch, 2021). Differentiating between sole and joint wealth, labour market participation should particularly promote the accumulation of sole assets for several reasons. First, employment provides access to income that can be used to invest in solely held assets. Second, employment offers employment-related benefits that directly or indirectly promote the accumulation of wealth. Employees can receive different kinds of subsidised benefits, such as voluntary retirement plans, stock options, life insurance, and building loan contracts (Chang, 2010, p. 41). As many of these benefits can only be held in individual names, they primarily add to individuals' sole wealth ownership. Unlike

income, a large part of wealth generated through employment cannot be shared with the partner, for instance via joint investments, but remains in sole ownership.

Even though individuals might not be able to share the ownership of sole assets with their partners, they likely benefit from sharing economic resources within the partnership. Prior research on income has shown that couples tend to pool large parts of their labour incomes (Burgoyne et al., 2010; Lott, 2017). This might also extend to annuitized incomes generated from individuals' sole wealth, such as private pension plans, which could then be transferred to the partner to make sole investments. Individuals might also directly invest in the partner's sole assets, for instance by depositing money in their savings account or taking over their mortgage payments. However, the benefits resulting from wealth redistribution within couples should not exceed those provided by individuals' access to wealth through employment because full sharing of employment-related benefits is hardly feasible.

Over the career, particularly a stable labour market attachment should enable the accumulation of sole assets. As wealth accumulation is a long-term process, individuals with a strong attachment to the labour market over large parts of their careers benefit from broad access to employment-related benefits, which considerably shape their sole wealth holdings in later life. In contrast, a shortened career either through a late entry or an early exit from the labour market should reduce the level of sole assets in later life. Particularly the early exit from the labour market should decrease sole wealth holdings because individuals likely gain the highest employment-related benefits throughout mid to late career stages, where their earnings tend to be highest and their employment with a company longest.

Further, unstable careers characterised by multiple employment disruptions might hinder individuals from accumulating sole wealth for several reasons. First, individuals' access to sole wealth accumulation is restricted during periods out of labour. Particularly during unemployment, the accumulation of sole and joint wealth should be considerably impaired, as income is substantially reduced and individuals face limited personal wealth allowances (Nutz & Lersch, 2021). Second, employment-related benefits, which are crucial for sole wealth holdings, are often

bound to a particular job or a specific position (Chang, 2010, p. 41). The accumulation of sole wealth might thus be restricted after re-entering the labour market or interrupting the respective employment status. Third, many employment-related benefits have high initial costs that accrue when new contracts on insurances or pension plans are made or old contracts are moved to a new employer. Hence, sole wealth accumulation should be most beneficial in long-standing employment relationships.

Interlinked with employment biographies, marriage biographies should play a fundamental role in shaping the way of asset holdings within couples in later life. Investments in joint wealth occur mainly among partners, particularly within marriage (Rowlingson & Joseph, 2010). Compared with cohabitation, marriage is characterised by more long-term commitment and higher mutual trust (Dew, 2016), which reduces the risks associated with joint investments, such as wealth losses in the case of union dissolution. Joint wealth holdings enable larger investments and mitigate investment risks, for instance by dividing the financial obligations on two pairs of shoulders. However, the co-ownership of an asset is characterised by mutual financial liability and might increase financial conflicts. Particularly long and stable marriages are important for accumulating large-scale investments (Kapelle & Lersch, 2020). As joint wealth holdings often comprise large assets like homeownership, the timing of marriage entry should be decisive. Entering marriage at early career stages should be crucial for investments in large-scale joint assets like housing wealth, which often require decades of paying off credits. In marriages later in life, partners might lack time to accrue large-scale joint investments. Consequently, early marriage should result in more joint wealth holdings in later life, whereas sole wealth holdings should be more prevalent both in absolute and relative terms in couples who marry late.

The divorce experience should considerably shape the way couples hold wealth in later life. Divorce reduces individuals' ability to accumulate wealth in the long term (Kapelle & Baxter, 2021). After divorce, individuals can no longer benefit from economic benefits associated with marriage, such as economies of scale (Kapelle & Lersch, 2020). Further, joint wealth accumulation is likely disrupted and most divorcees either sell the jointly owned asset to divide the returns or one becomes the sole owner by paying off the other (Lersch & Vidal, 2016). These

transformations often result in wealth losses, as divorcees might have to sell their joint wealth following union dissolution potentially at low prices and poor market conditions. Therefore, divorce should result in increased shares but not levels of sole wealth in higher-order marriages for the divorced partner. Divorce early in life quickly followed by remarriage might however mitigate wealth losses, as economies of scale could promote wealth accumulation throughout mid and later career stages.

2.2 Female employment-marriage biographies and wealth ownership

As described in the previous section, employment should be strongly linked to the accumulation of *sole* wealth holdings. Whereas men tend to be more strongly attached to the labour market and work in occupational positions with higher incomes and better access to employment-related benefits (Waitkus & Minkus, 2021), women's ability to self-accumulate wealth is more restricted across countries. However, a high labour market participation should also constitute the main source for women's accumulation of sole wealth irrespective of their marital status. Therefore, women's sole wealth holdings should be larger both in absolute terms and relative to the other wealth components in the couple if their employment biographies are characterised by a strong labour market attachment. Particularly at late-career stages, where average earnings and employment-related benefits are highest, women's labour market participation should be central to their sole wealth holdings in later life.

Regarding *joint* wealth holdings, marriage in interplay with employment biographies should play a fundamental role. Married couples should generally benefit from increased access to joint wealth due to the high institutionalised commitment within marriage. In dual earner couples, both partners can potentially contribute financially to joint investments. Under a gender-traditional division of labour with reduced female employment, couples should also promote the acquisition of joint wealth, as this specialisation enables men to focus on employment and to provide for the couple's investments economically. Further, investments in joint wealth are in line with men's traditional role as the main financial provider for the family.

Whereas men's labour market attachment plays a central role for couples' joint wealth accumulation irrespective of the career stage, the importance of women's employment should vary across working life. Women's employment early in the career might be particularly important for the couple to accumulate joint wealth holdings, as the employment entry enables the accumulation of starting capital that is required for large-scale investments. Once the high initial costs of a joint investment are covered, the accumulation process might proceed with one partner's investments only – which is most likely covered by men, while women tend to reduce employment in mid-career stages in Germany (Nutz & Lersch, 2021). Overall, a stable marriage should promote joint wealth holdings both in absolute terms and relative to both partners' sole wealth holdings. Under a gender-traditional division of labour, the share of joint wealth in the couple should further increase, as female secondary earners and homemakers are restricted in their ability to accrue sole wealth, making men's sole and joint wealth the main components of couples' wealth portfolios.

3 The German context

In the following section, I provide a short overview of the historical development of Germany's pension system, unemployment benefits, and matrimonial property regime, which altogether shape the way how women's employment-marriage biographies shape the wealth distribution within couples. In Germany, most employees have public insurance and supplemental health care plans, which reduces the scope of employment-related benefits compared with other western countries.[14] Common employment-related benefits include subsidised voluntary pension schemes, life insurances, shareholdings, a 13th check, or capital-forming benefits. Whereas life insurances in Germany have existed since the 19th century, the importance of voluntary old-age provision increased considerably with the pension reform in 2001. With the reduction of public pensions and the introduction of the private Riester pension, old-age provision has increasingly shifted from public towards private responsibility since the early 2000s (Ebbinghaus, 2015;

[14] Setting up employee benefits is also complicated in Germany due to the law on equal treatment of employees that permits unjustified discrimination on grounds of ascribed characteristics.

Skopek et al., 2014). The changes in the pension law reduced statutory pension levels while funding voluntary pension schemes through tax relief and government subsidies (Geyer, 2011). Private pensions were indirectly subsidised by the state before 2001, whereas subsidised occupational pensions did not exist. In 2011, around 25 percent of all retirees in Germany aged 65 and older received occupational pensions, whereas already 56 percent of employees aged between 25 and 65 are covered by voluntary occupational pension plans (Bönke et al., 2019).

Between 1956 and 2004, unemployed people in Germany received unemployment assistance (*Arbeitslosenhilfe*). Although the long-term unemployed received at least 53 percent of their previous net income, they were restricted in their wealth accumulation. The protected assets individuals were allowed to hold amounted to EUR 520 per year of life (reduced to EUR 200 between 2003 and 2005), leaving a 40-year-old woman with a maximum wealth ownership of EUR 20,800 (40 * EUR 520) before 2002 and EUR 8,000 afterwards. In 2005, the Hartz reforms shortened the entitlement period of unemployment benefits (*Arbeitslosengeld I*) to one year. From the second year on, unemployed people receive a reduced means-tested and conditional transfer (*Arbeitslosengeld II*), reducing the maximum personal allowance to EUR 9,750. In couples with at least one unemployed partner, partners form a so-called “community in need” that doubles the maximum personal allowance. As unemployment benefits are means-tested, couples with at least one unemployed partner whose wealth holdings exceed this threshold are excluded from welfare support.

The default matrimonial property regime in Germany, the community of accrued gains, regulates the ownership of resources within marriage. Under the default, spouses’ personal wealth (including gifts and inheritances) and gains accrued before or during marriage remain in personal respectively sole ownership throughout marriage. At divorce, all assets purchased during marriages as well as surplus gains (except gifts and inheritances) are split equally between both ex-spouses irrespective of the ownership status. The redistribution at divorce should ensure that the spouse focusing on unpaid work, most often the wife, benefits equally from wealth accrued throughout marriage. In 1977, the adjustment of pension rights (*Versorgungsausgleich*) was introduced to ensure that female secondary earners are economically compensated for the income

losses they faced during marriage. However, 25 to 40 percent of all divorced couples do not adjust their pension rights (Radenacker et al., 2019). Due to strong gender differences in the German labour market, many divorced women may therefore be highly affected by low pension wealth.

4 Data, measurement, and method

4.1 Data and sample

This study draws on data from the German Socio-Economic Panel Study (SOEP; v36: doi:10.5684/soep.v36), which is a large, nationally representative household panel survey for Germany (Goebel et al., 2019). In 2002, 2007, 2012 and 2017, the SOEP collected comprehensive data on personal wealth of all adult household members. The survey further includes yearly retrospective information on individuals' work and marriage biographies from ages 15 respectively 18 on. This information is updated prospectively in the annual surveys.

In this study, I examine the wealth of married women aged 50 years and older in interdependence with their male partners who have provided wealth information during at least one observation year (2002, 2007, 2012, or 2017). Starting from a sample of 16,816 individuals, I first exclude 6,212 individuals without an existing partner linkage. Second, I exclude 18 couples in same-sex marriages. Third, I restrict the sample to couples with both partners living in Western Germany both in 1989 and during data collection, excluding 2,700 couples. Fourth, I exclude 318 couples that did not provide information on whether they hold assets in sole or joint names. In a final step, I halve the sample by restricting it to female spouses only. As this study examines the allocation of assets within couples, I also exclude 369 couples with zero wealth from the main analyses. These couples are however included in robustness checks, which provide results similar to the main analyses (see Table A5 in the online appendix). The final analytical sample includes 3,415 female spouses. As this study examines the allocation of assets within couples, I additionally consider the male spouse in the wealth outcomes at the couple level, through marriage biographies per se, and by including both control variables for both spouses. The average age in the analytical sample is 55.8 ($SD \pm 5.2$) years for women and 58.8 ($SD \pm 6.6$) years for their male partners.

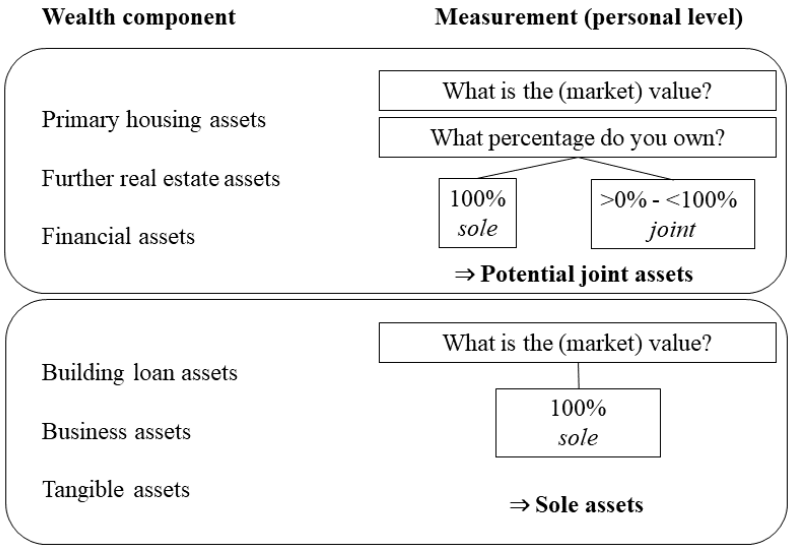
4.2 Measurement and method

The SOEP wealth measures allow the differentiation between solely and jointly held wealth. First, for assets that can be held either solely or jointly (housing, further real estate, and financial assets), respondents provide information on the value of the asset, as well as on their shares (see Figure 1). If the share is 100 percent, the asset is defined as sole. For shares between (not including) 0 and 100, the asset is defined as joint. For instance, a house that is 30 percent owned by the husband and 70 percent by the wife is a joint asset as well as a house that is held equally (i.e., 50/50). Second, for assets that are commonly held solely (building loans, business, and tangible assets), respondents were only asked about the asset value. Here, the SOEP assumes sole ownership and does not ask for co-holders, so the value of these assets is counted as sole.

The first set of outcomes comprises measures of the share of women's solely and jointly held assets in the couple. The sole share is calculated as the value of the woman's sole assets, divided by the couple's total assets. The joint share is calculated as the value of joint assets, divided by the couple's total assets. As proportions, the shares are bounded between 0 and 1. The second set of outcomes measures women's level of sole and joint assets. Both measures are adjusted for inflation. Further, I apply an inverse hyperbolic sine (IHS) transformation to adjust for the right-skewed distribution of assets, which includes many zero values (Friedline et al., 2015). IHS-transformed regression coefficients can be interpreted similarly to logarithmised coefficients.

For the analyses, I use edited wealth data building on five sets of imputed wealth values by the SOEP team (Grabka & Westermeier, 2015). I additionally impute missing values of other relevant variables using chained equations with Stata's *mi* procedure (see Table A1 in the online appendix for a detailed list of the variables used in the imputation models and their proportion of missing values). For the outcome measures, I compute the average gross worth in the available years (2002, 2007, 2012, 2017) to reduce the influence of single survey years of wealth over- or underreporting (26.9 percent of the couples are observed twice, 12.8 percent thrice, and 5.7 percent four times).

Figure 1 Measurement and operationalisation of sole and joint assets in the SOEP



Source: Own illustration based on SOEP person questionnaire 2017 (https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.611290.de/diw_ssp0563.pdf, accessed 18/10/2021).

The analyses are conducted in several steps. In the first step, I identify typical female employment-marriage patterns utilising multichannel sequence analysis consisting of two channels, employment and marriage (MCSQA; Gauthier et al., 2010). The employment channel includes the seven states "in education", "full-time employed", "part-time employed", "unemployed", "homemaking", "retired", and "parental leave". The marriage channel includes the four states "never married", "married" (i.e., in first marriage), "previously married" (i.e., divorced or widowed), and "remarried". MCSQA quantifies the similarity between all possible pairs of sequences across both channels in a full pairwise distance matrix. I utilise Optimal Matching (OM) to compute the distances as the minimum total cost of transforming one sequence into the other. The transformation costs of the three operators substitution, insertion, and deletion are set to 2 for substitution and 1 for insertion and deletion.[15] In the second step, I apply hierarchical cluster analysis using Ward's algorithm to obtain internally homogeneous and externally heterogeneous clusters. Driven by goodness-of-fit indicators (see Figure A1 in the

[15] I tested other matching algorithms and cost regimes, namely the Dynamic Hamming distance (DHD), the Longest Common Subsequence (LCS), and the Hamming distance (HAM), which provided highly similar cluster solutions. See Table A2 for upper triangle correlations between full pairwise distance matrices computed with different distance measures.

online appendix), theoretical considerations, and sample size restrictions, the resulting solution support a seven-cluster solution of employment-marriage clusters (see Table A3 in the online appendix for descriptive statistics of all analytical variables by clusters).

In the third step, these clusters are inserted as predictors in multivariable analyses to predict women's shares and levels of sole and joint wealth within couples. For the two different outcomes, I conduct different types of analyses. First, I employ fractional logit models using maximum likelihood (Papke & Wooldridge, 1996). The share of sole assets is a proportion bounded between 0 and 1. A linear regression model is inappropriate for predicting proportions because it can predict values outside the limited range. Fractional logit models fit a logit transformation implemented via a generalised linear model to ensure that predictions of the dependent variable are bounded between 0 and 1. The fractional response model also provides a robust approach that adjusts for the non-normally distributed residuals. Because the share variables cluster at the upper and lower bounds with highly relevant endpoints, I choose fractional outcome models over beta regressions that exclude 0 and 1. Second, I employ ordinary least square (OLS) regressions to predict women's level of sole and joint assets. Standard errors are adjusted for clustering at the couple level.

In the multivariable analyses, I control for the IHS-transformed sum of both spouses' personal inheritances and *inter vivos* transfers to account for the relevance of financial transfers for the wealth distribution within the couple. I include the number of siblings, as they may constrain the transmission of parental resources, and the region type during childhood (urban/rural) because wealth accumulation through homeownership is more restricted in urbanised regions. I further control for both spouses' educational levels (low/medium/high), survey year, and women's age and age as quadratic term. To grasp partners' different capabilities to accrue wealth before marriage, I include a categorical variable measuring the age difference between both partners in their current marriage (similar age (±3 years), man older, woman older). Further, I control for women's age at first marriage to capture the potential length of their pre-marital sole wealth accumulation.

5 Results

5.1 Descriptive findings

5.1.1 Distribution of sole and joint wealth within couples

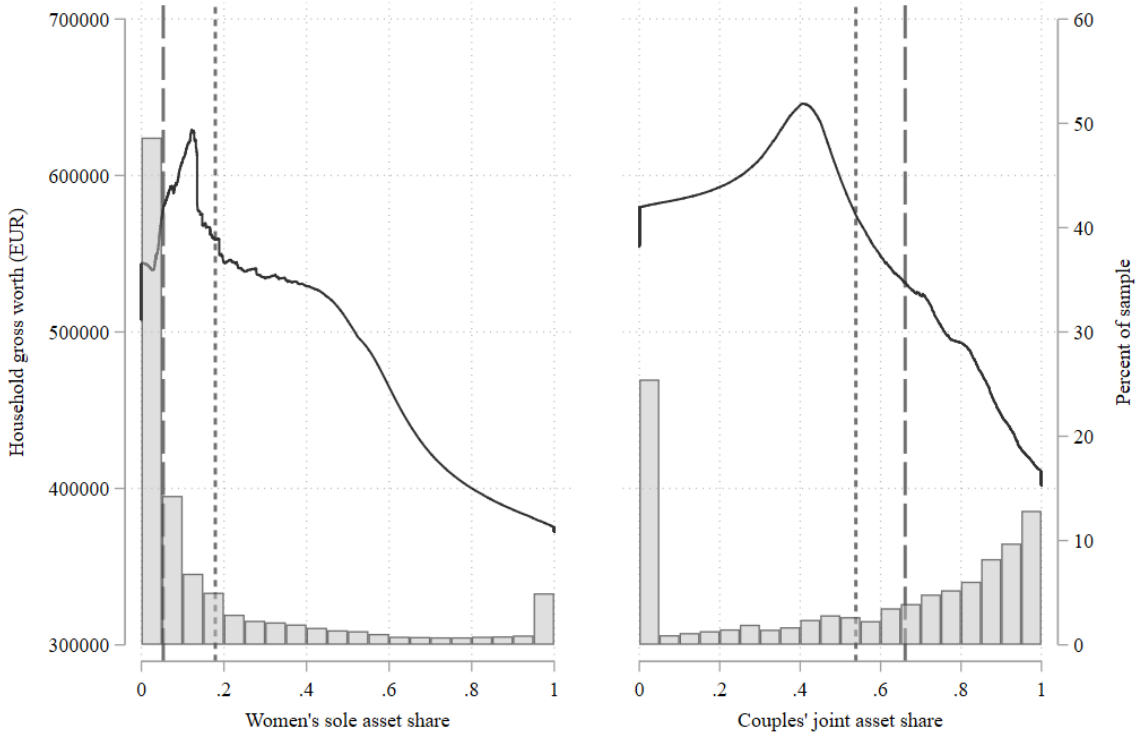
This section starts with a description of the distribution of women's sole and joint wealth within couples before introducing the employment-marriage clusters and comparing the distribution of wealth across clusters. Figure 2 (left panel) shows that women in the underlying sample hold an average of around 18 percent and a median of around 5 percent of all assets in the couple solely. However, at nearly 50 percent, many women do not hold any wealth solely. Joint wealth is more widespread among couples than women's sole asset holdings (right panel). On average, 54 percent of all assets are held jointly in the couple (median: 66 percent). Thus, most couples in the underlying sample hold more than half of their wealth portfolios jointly, which corresponds to Germany's family policies incentivising joint investments.

Additionally considering household gross worth (i.e., the sum of both partners' assets), I find that couples in which women own around 15 percent of all wealth solely have the highest levels of household wealth at around EUR 620,000. For joint wealth, the gross worth is highest for couples who hold around 40 percent jointly at around EUR 640,000. As women's sole or the couple's joint asset shares increase, the average household gross worth however declines. This indicates that wealth is highest among couples whose portfolios consist of a balanced mix of both partners' sole as well as joint investments.

5.1.2 Women's employment-marriage clusters

Figure 3 presents women's employment-marriage clusters from ages 18 to 49 in relative frequency sequence plots that depict 100 medoids per cluster, i.e., the most representative or typical employment-marriage trajectories of women in a respective cluster (for more information, see Fasang & Liao, 2014). I obtain seven clusters that depict distinct patterns of the interplay of career and marriage paths.

Figure 2 Distribution of women's sole and joint asset shares



Note: Locally weighted running-mean smooth and histogram. Solid lines indicate amount of personal (upper panel) and household (bottom panel) assets across the distribution of sole/joint asset shares. Short dashed lines depict average shares of sole/joint assets, long dashed lines depict median shares of sole/joint assets. Histograms depict the distribution of asset shares across the sample.
Source: SOEP (2002, 2007, 2012, 2017).

At 20.8 percent, the largest cluster consists of women in stable full-time employment who marry early (average age: 25.5 years) and remain continuously married. The second cluster is characterised by similar marriage patterns paired with unstable full-time employment that is disrupted by periods of part-time employment and homemaking (12.2 percent). The third cluster shares similar marriage patterns, in which women transition from full-time to part-time employment – either directly or after a period of homemaking (13.7 percent). The fourth cluster comprises women in stable and early marriage as well, who transition from full-time employment in early career stages into long-term homemaking later on (18.9 percent). The fifth cluster is characterised by women with prolonged education transitioning from full-time into stable part-time employment or homemaking (10.9 percent). Unlike women in cluster 3, who marry at an average age of 23.4 years, their marriage occurs later in life, around age 33. The sixth cluster is composed of unstable female full-time employment that is accompanied by divorce and

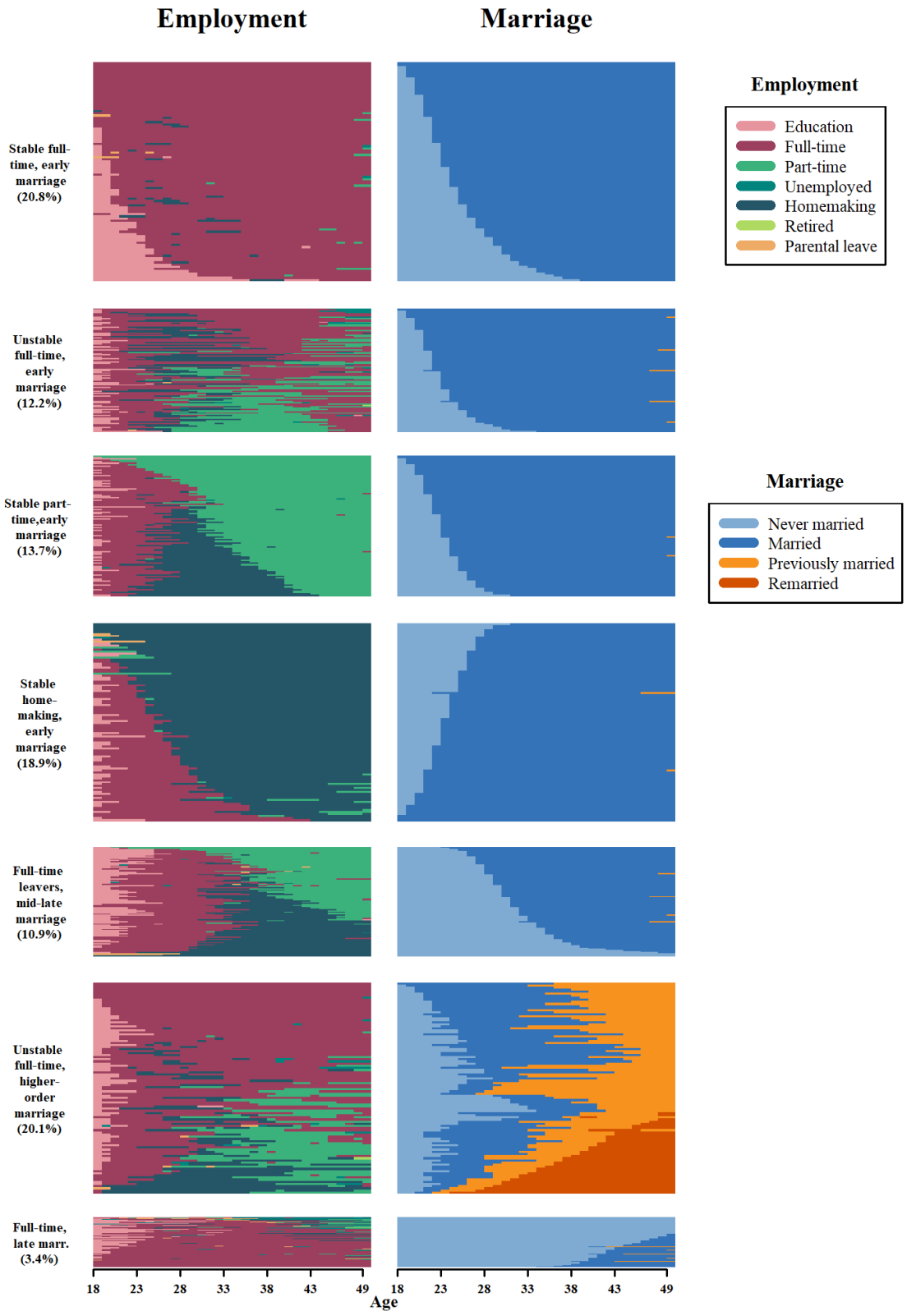
remarriage (20.1 percent). At an average age of 41.9 years, many women in this cluster marry their partner within the observation window ranging up to age 49, whereas others remarry after age 50. With 3.4 percent, cluster 7 is characterised by women in stable full-time employment whose first marriage to the current partner occurs later in life, at an average age of 47.0 years. Overall, the cluster composition reflects Western Germany's gender-traditional welfare state, with most women taking over the role of the family's main carers and secondary earners either temporarily or in the long term.

5.1.3 Sole and joint wealth across employment-marriage clusters

Table 1 presents women's average sole and joint wealth shares as well as their levels across employment-marriage clusters. Overall, women's average share of sole wealth varies only slightly across clusters. In higher-order and late marriage clusters, the sole asset shares lie at around 28 percent and, thus, around 10 points higher with the early marriage clusters. Women in stable homemaking arrangements (cluster 4) hold the lowest average share of sole wealth at around 12 percent, whereas the share of female full-timers amounts to 20 percent (cluster 1). Regarding joint wealth, the average share of about 36 percent is considerably lower among women in higher-order or late marriages (clusters 6 and 7) compared with early marriage clusters, with shares between 50 and 60 percent.

Beyond an increasing share of joint wealth, early marriage also promotes the acquisition of joint investments. Whereas joint wealth holdings are larger in clusters characterised by early marriage, the level of sole wealth is considerably lower in early compared with late marriage clusters. Stable female homemakers (cluster 4) have the lowest average sole wealth holdings at around EUR 44,000 compared with an average of EUR 139,000 for women with full-time employment careers in late marriage (cluster 7). Joint wealth is highest among early married couples with stable female homemaking (cluster 4) at around EUR 143,000 and couples with women transitioning from full-time to part-time or homemaking (cluster 5) at around EUR 148,000. Thus, joint wealth remains stable across couples in stable marriage, whereas women's sole wealth holdings vary depending on their employment biographies.

Figure 3 Relative frequency sequence plots across women's employment-marriage clusters



Note: Medoid sequences displayed, sorted by multidimensional scaling. Dissimilarities from medoids are shown in Figure A2 in the online appendix.
Source: SOEP (2002, 2007, 2012, 2017); weighted, non-imputed.

Table 1 Women's average shares and levels of sole and joint wealth

	Women's wealth share (Prop.)		Women's wealth level (EUR)		Obs.
	Sole	Joint	Sole	Joint	
Cluster 1: Stable full-time, early marriage	0.20 (0.28)	0.56 (0.38)	92 (278)	129 (151)	600
Cluster 2: Unstable full-time, early marriage	0.17 (0.27)	0.54 (0.38)	60 (176)	106 (131)	417
Cluster 3: Stable part-time, early marriage	0.15 (0.24)	0.58 (0.37)	58 (182)	123 (149)	740
Cluster 4: Stable homemaking, early marriage	0.12 (0.23)	0.60 (0.37)	44 (122)	143 (215)	620
Cluster 5: Full-time leavers, mid-late marriage	0.18 (0.27)	0.53 (0.37)	82 (250)	148 (296)	579
Cluster 6: Unstable full-time, higher-order marriage	0.28 (0.34)	0.37 (0.39)	119 (354)	77 (159)	325
Cluster 7: Full-time, late marriage	0.29 (0.33)	0.35 (0.38)	139 (569)	80 (115)	136
All	0.18 (0.28)	0.54 (0.38)	75 (251)	124 (193)	3415

Note: Depicted are averages, SD in parentheses. Wealth in EUR 1,000.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

5.2 Multivariable analyses

Table 2 presents the results from fractional logit (Models 1 and 2) and OLS regression models (Models 3 and 4) predicting women's shares of sole assets and the IHS-transformed total amount of their solely and jointly held assets. The reference cluster in all models is cluster 1 "Stable full-time, early marriage". To facilitate the interpretation of the coefficients, Figure 4 additionally depicts the predicted shares of women's sole and joint wealth as well as wealth levels across all clusters.

In line with my expectations, women's careers deviating from stable full-time employment are negatively associated with their shares of sole assets within the couple (Table 2, Model 1). Compared with the reference cluster, unstable full-time careers (cluster 2) are associated with a 31-point decrease in women's share of sole assets in the couple (p=0.05). Further, long-term homemaking (cluster 4) is particularly negatively associated with women's share of sole assets,

as indicated by a 42-point decrease compared with the reference cluster of stable full-timers (p=0.01). Considering the predicted shares of sole wealth (Figure 4, left panel), women in the reference cluster hold around 20 percent of couples' sole wealth compared with 14 percent among long-term homemakers. Thus, a high, stable, and long-term labour market attachment seems to promote women's accumulation of sole assets within couples – even within stable marriages.

The share of women's sole wealth is considerably higher in couples deviating from stable and early marriages, as their ability for large-scale joint investments should be restricted. Women's remarriage (cluster 6) is associated with a 44-point increase in their sole wealth share compared with the reference cluster (p=0.01; Table 2, Model 1). For late married women (cluster 7), the share of sole assets is associated with a 23-point increase, although this association is not statistically significant (p=0.33). Also, the predicted shares of sole assets are higher for remarried (28 percent) and late married women (24 percent; see Figure 4, left panel), exceeding the reference cluster at 20 percent.

Regarding the shares of joint assets within couples (Table 2, Model 2), I find little variation between the employment-marriage clusters characterised by early or middle marriage timing. For clusters 1 to 5, the predicted shares of joint assets vary slightly between 50 and 60 percent (see Figure 4, left panel). In line with my expectation that couples with a gender-traditional division of labour increasingly invest in joint wealth, the shares of joint assets are slightly higher for stable female part-timers and homemakers (clusters 3 and 4). However, the differences are not statistically significantly different from the stable and unstable full-time clusters (clusters 1 and 2), indicating that stable marriage generally promotes joint investments. According to my expectations, the share of joint assets is associated with an 82-point decline for remarried couples (cluster 6; p=0.00) and an 85-point decline for couples who married late (cluster 7; p=0.00; see Table 2, Model 2). Their predicted shares of joint wealth amount to around 33 percent, thus being considerably lower compared with couples in early marriage.

In line with the results on women's sole wealth shares, I find that most clusters deviating from stable female full-time employment and early marriage are negatively associated with the level

of their sole wealth holdings (Table 2, Model 3). An exception constitutes stable part-time employment (cluster 3), which is not significantly differently associated with women's sole wealth from the reference cluster (p=0.10). However, both clusters differ in the predicted level of sole wealth holdings, with female full-timers having an average of EUR 78,000 compared with EUR 56,000 among part-timers (Figure 4, right panel). Compared with women in continuous full-time employment, women in unstable full-time careers (cluster 2) also have lower levels of sole wealth holdings (p=0.02; see Table 2, Model 3), amounting to a predicted level of EUR 49,000. Also, stable homemakers (cluster 4) and women leaving full-time employment (cluster 5) are negatively associated with women's sole wealth holdings (p=0.00; p=0.01). Their predicted levels of sole wealth amount to EUR 45,000 and EUR 67,000, respectively (Figure 4, right panel). Both women in higher-order (cluster 6) and late marriages (cluster 7) are similarly related to sole wealth holdings as the reference cluster (see Table 2, Model 3). The predicted sole wealth levels lie at EUR 92,000 for women in higher-order marriages and EUR 98,000 for women who married late – however, with wide confidence intervals due to the high heterogeneity of wealth within these clusters (also see Table A3 in the online appendix).

In line with the descriptive findings, I find little variation in the association between employment-marriage clusters and the level of joint wealth holdings within couples (Table 2, Model 4). The predicted level of joint wealth is similar for all early marriage clusters, for instance amounting to EUR 108,000 for full-timers (cluster 1) and EUR 110,000 for part-timers (cluster 3; Figure 4, right panel). However, higher-order (cluster 6) and late marriages (cluster 7) have considerably lower levels of joint assets than the reference cluster (p=0.00; p=0.00), amounting to EUR 71,000 for higher-order and EUR 61,000 for late marriages in absolute terms.

Overall, the interplay of employment and marriage biographies shapes the distribution of sole and joint wealth holdings within couples in later life. In line with my expectations, women's share of sole assets is higher in couples with a strong female labour market attachment, which is also reflected in higher levels of sole wealth holdings. Whereas reduced forms of employment result in lower shares of sole wealth, stable arrangements of female homemaking or part-time employment within marriage promote the accumulation of joint wealth similar to female full-time

employment. Both late marriage and remarriage, in contrast, reduce the shares and levels of joint wealth, which women cannot compensate with higher levels of sole wealth.

5.3 Supplementary analyses

The SOEP wealth modules collect information on the ownership share for most wealth components, including housing equity and financial wealth. For other wealth components that are typically held solely, the data only provide the value of the respective asset in individual ownership (see Figure 1). To ensure that these measurement differences do not drive the results, I conduct additional fractional logit and OLS regression models restricted to assets that can potentially be jointly owned (primary housing, further real estate, and financial assets).

The supplementary analyses provide results largely similar to the main analyses (see Table A6 in the online appendix). Whereas employment-marriage clusters predict women's levels of sole wealth holdings similar to the main analyses, the association between employment-marriage clusters and their sole wealth shares is weaker under the exclusive consideration of assets that can potentially be jointly owned. The results indicate, first, that women's solely held wealth is largely concentrated in financial wealth, whereas the sole ownership of housing wealth remains scarce. Second, an increasing share of women's sole wealth relative to the partner mostly results from gains in wealth components other than savings or bonds, such as building loans, private pension plans, and life insurances.[16] Hence, women's economic positions within the couple seems to improve most strongly if they have broad access to employment-related benefits.

[16] The SOEP wealth data summarise several wealth components and therefore do not allow differentiating between wealth from building savings contracts, life insurance policies, and private retirement insurances.

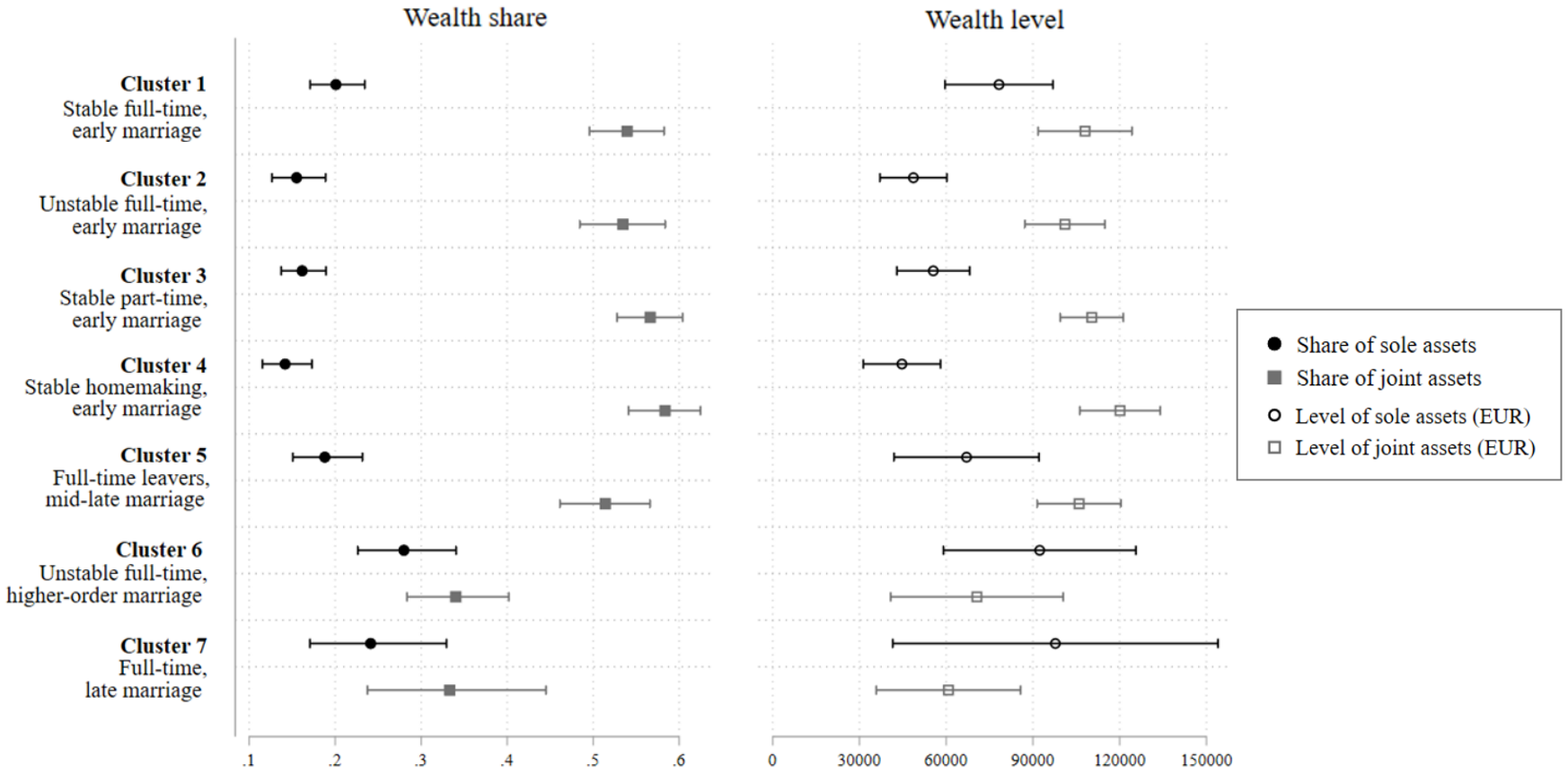
Table 2 Fractional logit (models 1 and 2) and ordinary least square (models 3 and 4) regression models on women's sole shares and levels of sole and joint assets

	(1)	(2)	(3)	(4)
	Women's sole share	Couple's joint share	Women's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Cluster 2: Unstable full-time, early marriage	-0.31	-0.02	-0.98	-0.19
	(0.16)	(0.14)	(0.42)	(0.46)
	[0.05]	[0.89]	[0.02]	[0.68]
Cluster 3: Stable part-time, early marriage	-0.27	0.11	-0.58	0.58
	(0.14)	(0.12)	(0.35)	(0.40)
	[0.06]	[0.37]	[0.10]	[0.15]
Cluster 4: Stable homemaking, early marriage	-0.42	0.18	-1.71	0.26
	(0.16)	(0.13)	(0.39)	(0.42)
	[0.01]	[0.15]	[0.00]	[0.53]
Cluster 5: Full-time leavers, mid-late marriage	-0.08	-0.10	-1.07	-0.34
	(0.17)	(0.14)	(0.40)	(0.47)
	[0.62]	[0.47]	[0.01]	[0.48]
Cluster 6: Unstable full-time, higher-order marriage	0.44	-0.82	0.22	-3.16
	(0.18)	(0.16)	(0.51)	(0.55)
	[0.01]	[0.00]	[0.67]	[0.00]
Cluster 7: Full-time, late marriage	0.23	-0.85	-0.27	-2.75
	(0.24)	(0.25)	(0.77)	(0.90)
	[0.33]	[0.00]	[0.72]	[0.00]

Note: Reference cluster 1 "Stable full-time, early marriage". All models control for the couple's age difference, the husband's years in full-time employment, part-time employment, unemployment, homemaking as well as both partners' number of children, age, age-squared, age at first marriage, personal inheritances, educational level, region during childhood, number of siblings, and year dummies. See Table A4 in the online appendix for full results.

Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

Figure 4 Predicted shares and wealth holdings of women's sole and couple's joint wealth



Note: Depicted are 95% confidence intervals. All models control for the couple's age difference, the husband's years in full-time employment, part-time employment, unemployment, homemaking as well as both partners' number of children, age, age-squared, age at first marriage, personal inheritances, educational level, region during childhood, number of siblings, and year dummies.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

6 Discussion

This study investigates how women's sole and joint assets are distributed within married couples in Western Germany in later life, considering women aged 50 and older. As wealth is accumulated in the long term over the life course, I further examine how employment-marriage biographies shape the distribution and level of solely and jointly held wealth among these couples. Prior research has widely examined the predictors of personal wealth, measured as the sum of individuals' sole plus their share of joint wealth (e.g., Sierminska et al., 2018). This study argues that the way individuals hold assets within the couple additionally affects their economic situations. Against the widespread notion of marital pooling that is promoted by Germany's family and taxation policies, asset ownership structures are relevant for married couples. Under Germany's default matrimonial property regime, the community of accrued gains, wealth remains in separate ownership during marriage and is only redistributed in the event of divorce.

Although prior studies have revealed that most couples do not fully pool their wealth (e.g., Grabka et al., 2015; Lersch, 2017a), it remains unclear how couples vary in their extent of economic togetherness. In this study, the share of women's sole and joint assets provides information on the distribution of wealth within couples, whereas the absolute level of women's sole and joint assets completes the picture of their economic situation. Employing multichannel sequence and cluster analyses paired with fractional logit and OLS regressions with data from the SOEP, I examine the life course predictors of women's shares of sole and joint assets within couples in Western Germany in later life together with the total amount of their solely and jointly held assets.

Across all couples in the underlying sample, the average share of joint wealth is 54 percent (median: 66 percent), which is considerably higher within couples than women's sole share at an average of around 18 percent (median: 5 percent). The high proportion of joint wealth might be largely due to German policies incentivising joint investments within marriage. Whereas more than half of all couples hold joint assets, most women do not own any or only little sole wealth. Hence, women tend to be at risk of economic dependency on the partner, as their wealth portfolios exclusively or largely consist of joint wealth, which cannot be accessed or used without the

partner's consent. With housing wealth as most couples' largest joint investment, women's wealth might be largely bound in illiquid property that does not generate income but involves additional maintenance costs.

Whereas the employment biographies of older married women in Western Germany are found to be highly heterogeneous (see also Nutz & Lersch, 2021), their marriage biographies are primarily characterised by stable marriages starting in early life stages. In these couples, women's sole wealth shares are considerably lower, while their joint wealth shares are higher compared with remarried or late married women. However, I find that not only marriage but also employment is associated with sole asset shares among early married women. Full-time employment promotes their access to sole wealth, resulting in higher shares of women's sole assets within couples irrespective of their marriage biography. Supplementary analyses indicate that particularly the accumulation of private pension plans and life insurances drives the increase of full-time employed women's sole asset shares in the couple. Thus, it requires a high labour market participation paired with financial literacy to individualise the distribution of wealth within couples. In absolute terms, however, couples with female full-timers additionally invest in large-scale joint investments, so their economic togetherness is equally high compared with couples with gender-traditional employment arrangements.

Further, the results show that particularly the stability in employment biographies enhances women's wealth outcomes in later life. First, unstable full-time employment reduces both women's sole wealth shares and levels. Frequent career disruptions and associated employment changes might therefore restrict the ability to accumulate sole wealth in the long term. Second, stable arrangements of female part-time employment or homemaking result in slightly higher shares of joint assets within couples. Although women in male breadwinner couples are restricted in their ability to accumulate sole wealth, couples' increased investments in joint assets can partly reduce their economic disadvantage. However, this compensation might increase their risk of undesired economic dependency, as they have no or limited assets available to fulfil their financial needs independent from the partner. Consequently, women's actual economic disadvantage might be underestimated under the exclusive consideration of the absolute wealth gap. The composition

of the wealth portfolio should thus be considered in future research when assessing the economic situations of individuals within partnerships.

Consistent with prior wealth research (e.g., Kan & Laurie, 2014), divorce is associated with increasing economic individualisation within couples. Women in higher-order marriages hold higher shares of sole and lower shares of joint wealth than women in their first marriage. In absolute terms, however, remarried women cannot compensate for the decline in joint investments after divorce with increased investments in solely held assets. Similarly, late married women are not able to compensate for the economic disadvantage resulting from missing joint investments with increased sole wealth holdings. In later life, remarried and late married women thus have overall lower levels of wealth than their stable and early married counterparts. These findings are in line with research on the marital wealth premium (Kapelle & Lersch, 2020; Lersch, 2017b) and complement earlier findings on wealth disadvantages after divorce (Kapelle & Baxter, 2021) by revealing that these losses are predominantly shaped by the missing opportunity to build up joint wealth.

Some limitations of this study need to be acknowledged. First, this study is subject to large measurement error of wealth and lacking coverage of the top wealth distribution. Measuring wealth at the individual level involves the risk of a discrepancy between legal and perceived ownership within couples, which may result in erroneous assignments of ownership structures. As this study's measures do not differentiate between partners' varying degrees of joint ownership (e.g., 50/50 or 70/30), the risk of misspecification should however be reduced. This study may therefore underestimate gender wealth inequalities, as women own smaller average proportions of joint assets than men (Sierminska et al., 2010). Second, employment biography data of the SOEP do not cover retrospective information on income, the employer, or other employment characteristics throughout the career. Thus, the underlying data do not allow a more profound examination of the role of work involvement for wealth in later life.

An important avenue for future research is examining the wealth distribution within couples over time to compare developments in Germany with current trends of individualisation in other

countries, such as France (Frémeaux & Leturcq, 2020). Because the birth cohorts under study, born until the mid-20th century, differ significantly from later-born cohorts regarding their normative attitudes and the institutional circumstances they experienced, future research should examine the distribution of wealth within couples across varying age groups. Of particular interest is comparing married with cohabiting couples because prior research identified a greater shift towards independence in money management among cohabiters (Vogler, 2005). Future research should also differentiate between different types of liabilities to better understand the distribution of debts between partners.

Overall, the results of this study indicate that married couples build strong economic units – although to varying degrees depending on their marriage biographies. Unlike prior research on money management (Lott, 2017; Vogler et al., 2006), I do not find evidence for the individualisation of wealth within couples through high female labour market participation. The studies have revealed full-time employed women's preference for independent money management to maintain their financial autonomy. Whereas this study shows that continuous full-time employment also increases women's sole wealth holdings, both the share and the level of joint wealth within these couples is comparable to more traditional couple types. Hence, women's ability to accrue sole assets through employment does not seem to reduce investments in joint wealth. In fact, the benefits associated with joint wealth, such as larger investments and risk-sharing with the partner, prevail in Western Germany, where welfare policies promote joint investments within marriage.

7 Bibliography

Bönke, T., Grabka, M. M., Schröder, C., Wolff, E. N., & Zyska, L. (2019). The joint distribution of net worth and pension wealth in Germany. *Review of Income and Wealth*, *65*(4), 834–871. https://doi.org/10.1111/roiw.12371

Burgoyne, C. B., Reibstein, J., Edmunds, A. M., & Routh, D. A. (2010). Marital commitment, money and marriage preparation: What changes after the wedding? *Journal of Community & Applied Social Psychology*, *20*(5), 390–403. https://doi.org/10.1002/casp.1045

Chang, M. L. (2010). *Shortchanged: Why women have less wealth and what can be done about it*. Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195367690.001.0001

Dew, J. (2016). Revisiting financial issues and marriage. In J. J. Xiao (Ed.), *Handbook of*

consumer finance research (pp. 281–290). https://doi.org/10.1007/978-3-319-28887-1

Ebbinghaus, B. (2015). The privatization and marketization of pensions in Europe: A double transformation facing the crisis. *European Policy Analysis*, *1*(1), 56–73. https://doi.org/10.18278/epa.1.1.5

Fasang, A. E., & Liao, T. F. (2014). Visualizing sequences in the social sciences: Relative frequency sequence plots. *Sociological Methods and Research*, *43*(4), 643–676. https://doi.org/10.1177/0049124113506563

Frémeaux, N., & Leturcq, M. (2020). Inequalities and the individualization of wealth. *Journal of Public Economics*, *184*, 104145. https://doi.org/10.1016/j.jpubeco.2020.104145

Friedline, T., Masa, R. D., & Chowa, G. A. N. (2015). Transforming wealth: Using the inverse hyperbolic sine (IHS) and splines to predict youth's math achievement. *Social Science Research*, *49*, 264–287. https://doi.org/10.1016/j.ssresearch.2014.08.018

Gauthier, J.-A., Widmer, E. D., Bucher, P., & Notredame, C. (2010). Multichannel sequence analysis applied to social science data. *Sociological Methodolgy*, *40*(1), 1–38. https://doi.org/10.1111/j.1467-9531.2010.01227.x

Geyer, J. (2011). *Riester-Rente: Rezept gegen Altersarmut? [Riester pension: Recipe against old-age poverty?]* DIW-Wochenbericht 78(47), 16–21.

Goebel, J., Grabka, M. M., Liebig, S., Kroh, M., Richter, D., Schröder, C., & Schupp, J. (2019). The German Socio-Economic Panel (SOEP). *Jahrbücher für Nationalökonomie und Statistik* [*Journal of Economics and Statistics]*, *239*(2), 345–360. https://doi.org/10.1515/jbnst-2018-0022

Grabka, M. M., Marcus, J., & Sierminska, E. (2015). Wealth distribution within couples. *Review of Economics of the Household*, *13*(3), 459–486. https://doi.org/10.1007/s11150-013-9229-2

Grabka, M. M., & Westermeier, C. (2015). *Editing and multiple imputation of item non-response in the wealth module of the German Socio-Economic Panel*. SOEPpapers on Multidisciplinary Panel Data Research (No. 18).

Halpern-Manners, A., Warren, J. R., Raymo, J. M., & Adam Nicholson, D. (2015). The impact of work and family life histories on economic well-being at older ages. *Social Forces*, *93*(4), 1369–1396. https://doi.org/10.1093/sf/sov005

Kan, M. Y., & Laurie, H. (2014). Changing patterns in the allocation of savings, investments and debts within couple relationships. *Sociological Review*, *62*(2), 335–358. https://doi.org/10.1111/1467-954X.12120

Kapelle, N., & Baxter, J. (2021). Marital dissolution and personal wealth: Examining gendered trends across the dissolution process. *Journal of Marriage and Family*, *83*(1), 243–259. https://doi.org/10.1111/jomf.12707

Kapelle, N., & Lersch, P. M. (2020). The accumulation of wealth in marriage: Over-time change and within-couple inequalities. *European Sociological Review*, *36*(4), 580–593. https://doi.org/10.1093/esr/jcaa006

Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual Review of Sociology*, *43*(1), 379–404. https://doi.org/10.1146/annurev-soc-060116-053331

Knoll, M. A. Z., Tamborini, C. R., & Whitman, K. (2012). I do...want to save: Marriage and retirement savings in young households. *Journal of Marriage and Family*, *74*(1), 86–100. https://doi.org/10.1111/j.1741-3737.2011.00877.x

Lersch, P. M. (2017a). Individual wealth and subjective financial well-being in marriage: Resource integration or separation? *Journal of Marriage and Family*, *79*(5), 1211–1223. https://doi.org/10.1111/jomf.12406

Lersch, P. M. (2017b). The marriage wealth premium revisited: Gender disparities and within-individual changes in personal wealth in Germany. *Demography*, *54*(3), 961–983. https://doi.org/10.1007/s13524-017-0572-4

Lersch, P. M., & Vidal, S. (2016). My house or our home? Transitions into sole home ownership in British couples. *Demographic Research*, *35*(6), 139–166. https://doi.org/10.4054/DemRes.2016.35.6

Lott, Y. (2017). When my money becomes our money: Changes in couples' money management. *Social Policy and Society*, *16*(2), 199–218. https://doi.org/10.1017/S1474746415000688

Nutz, T., & Lersch, P. M. (2021). Gendered employment trajectories and individual wealth at older ages in Eastern and Western Germany. *Advances in Life Course Research, 47*, 100374. https://doi.org/10.1016/j.alcr.2020.100374

Papke, L. E., & Wooldridge, J. M. (1996). Econometric methods for fractional response variables with an application to 401(k) plan participation rates. *Journal of Applied Econometrics*, *11*(6), 619–632. https://doi.org/10.1002/(SICI)1099-1255(199611)11:6<619::AID-JAE418>3.0.CO;2-1

Pepin, J. R. (2019). Beliefs about money in families: Balancing unity, autonomy, and gender equality. *Journal of Marriage and Family*, *81*(2), 361–379. https://doi.org/10.1111/jomf.12554

Radenacker, A., Kreyenfeld, M., Stracke, E., & Mika, T. (2019). Der Ausschluss des Versorgungsausgleichs. Hintergründe und Trends. [The exclusion of pension equalisation. Background and trends.] *Neue Zeitschrift Für Familienrecht*, *21*, 937–976.

Rowlingson, K., & Joseph, R. (2010). *Assets and debts within couples: Ownership and decision making*. Dorking, UK: Friends Provident Foundation.

Sierminska, E., Frick, J. R., & Grabka, M. M. (2010). Examining the gender wealth gap. *Oxford Economic Papers*, *62*(4), 669–690. https://doi.org/10.1093/oep/gpq007

Sierminska, E., Piazzalunga, D., & Grabka, M. M. (2018). *Transitioning towards more equality? Wealth gender differences and the changing role of explanatory factors over time*. Bonn, Germany: IZA Discussion Papers 12404IZA.

Skopek, N., Buchholz, S., & Blossfeld, H. P. (2014). National patterns of income and wealth inequality. *International Journal of Comparative Sociology*, *55*(6), 463–488. https://doi.org/10.1177/0020715214565674

Vogler, C. (2005). Cohabiting couples: rethinking money in the household at the beginning of the twenty first century. *The Sociological Review, 53*(1), 1–29. https://doi.org/10.1111/j.1467-954X.2005.00501.x

Vogler, C., Brockmann, M., & Wiggins, R. D. (2006). Intimate relationships and changing patterns of money management at the beginning of the twenty-first century. *The British Journal of Sociology*, *57*(3), 455–482. https://doi.org/10.1111/j.1468-4446.2006.00120.x

Waitkus, N., & Minkus, L. (2021). Investigating the gender wealth gap across occupational classes. *Feminist Economics*, *27*(4), 114–147. https://doi.org/10.1080/13545701.2021.1973059

Yilmazer, T., & Lyons, A. C. (2010). Marriage and the allocation of assets in women's defined contribution plans. *Journal of Family and Economic Issues*, *31*(2), 121–137. https://doi.org/10.1007/s10834-010-9191-6

CHAPTER 4

DIVIDING LABOR, SHARING ASSETS?

DYADIC EMPLOYMENT BIOGRAPHIES AND WITHIN-COUPLE WEALTH INEQUALITY IN BRITAIN AND WESTERN GERMANY

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Abstract

Objective: This study examines how the interplay of both partners' employment biographies is associated with the within-couple gender wealth gap in later life in Britain and Western Germany, including married couples born between the 1920s and 1960s.

Background: Although it is well-known that women own less personal wealth than their male partners on average, variation in the gender wealth gap across partners' employment constellations and contexts remains unaddressed. Following the life course paradigm, this study theorizes how individual wealth accumulation, within-couple redistribution processes, and institutional arrangements shape the within-couple gender wealth gap in later life.

Method: The analyses rely on retrospective employment and prospective survey data from Britain (UKHLS; Wave 8; 2016-2018) and Germany (SOEP; 2017). Sequence and cluster analyses detect patterns of dyadic employment biographies (ages 20-55) among different-sex couples in their first marriage and OLS regressions associate them with the within-couple gender wealth gap.

[17] Due to word limitations of the journal, the title of the published version is shortened to *Dyadic employment biographies and within-couple wealth inequality in Britain and Western Germany*

Results: The within-couple gender wealth gap to the disadvantage of women existed in Britain and Western Germany, with considerably larger inequality in Germany. German male breadwinner couples, particularly those with longer periods of female homemaking and part-time employment, showed higher levels of wealth inequality. Whereas dyadic employment biographies were not clearly associated with the gender wealth gap in Britain, stable arrangements of female full-time employment reduced the gap in Germany.

Conclusion: A similar division of labor throughout the life course can result in different levels of the within-couple gender wealth gap in later life across country contexts, particularly depending on the housing system.

1 Introduction

In light of population aging, economic well-being in later life becomes a crucial topic of interest for policy and research. Due to the cumulative nature of wealth, particularly differences in individuals' biographies throughout working life generate marked inequality in wealth in later life (Denton & Boos, 2007; Nutz & Lersch, 2021). At retirement, personal wealth is important to ensure economic well-being after the loss of employment income. Whereas financial wealth might generate income through capital gains, housing wealth provides rent-free accommodation. Further, within-couple wealth inequality is likely to remain stable until the end of life, as retirees face limited opportunities to self-accumulate wealth via labor market participation. In many countries, including Britain, retirees have been mostly privately responsible for sustaining their living standards. In return, the re-marketization of pension systems since the early 2000s in Germany and other western countries has increased the need for private old-age provision (Ebbinghaus, 2015).

Within couples, women have been identified to hold lower average levels of personal wealth than their male partners across countries, including Britain (Kan & Laurie, 2014) and Germany (Grabka et al., 2015; Sierminska et al., 2018). Women have also been found to hold lower levels of pension wealth than their male partners at retirement (Denton & Boos, 2007). Against the

common belief of marital sharing, however, spouses do not share their personal wealth and respective property rights per default in Britain and Germany. Although spouses might share wealth benefits, for instance by redistributing income or providing accommodation, they have no legal right to participate in the other's wealth management and have no say in major decisions, such as asset disposal. Thus, individuals benefit more strongly from their own than their spouses' wealth in their psychological and financial well-being (Kan & Laurie, 2014; Lersch, 2017a).

A large body of research has investigated the consequences of wealth inequality in society (for an overview, see Killewald et al., 2017). The within-couple wealth gap is a central dimension of overall wealth inequality that affects the lives of partnered women and men. Besides the ownership of individual resources, the relative standing of individuals compared with their partners affects various outcomes at both the personal and the couple level. Prior research has shown that mainly the relative and less the absolute economic standing in the society matters for the positive impact of wealth on individuals' subjective well-being (Rojas, 2019). Within couples, women's life satisfaction increases with their increasing relative wealth as they gain economic independence and bargaining power (Tisch, 2021).

Examining the sources of within-couple wealth disparities in later life, it is crucial to consider the interplay of both partners' employment biographies. However, little attention has been paid to the division of labor throughout their career paths. We therefore ask: *How are married partners' employment trajectories associated with the within-couple gender wealth gap in later life?* and *How does this association differ between Britain and Western Germany?*

This study's contributions to the existing literature are threefold, integrating a dyadic, a dynamic, and a comparative approach. First, many studies examining within-couple gender wealth disparities predominantly considered individual-level determinants separately by gender, neglecting that individuals' wealth accumulation processes might also be shaped by their partners (Sierminska et al., 2010, 2018). To better understand the predictors of within-couple wealth inequality, we examine individuals' wealth accumulation processes in interdependence with the partner. We extend prior research by incorporating dyadic employment biographies and

theorizing on the redistribution of economic resources within couples, which is related to their division of paid and unpaid labor.

Second, we integrate both partners' employment states and group them in meaningful clusters of employment biographies from ages 20 to 55. This allows the consideration of duration, frequency, and timing of certain employment constellations for the within-couple gender wealth gap in later life. The few studies that have taken a couple perspective on gender wealth inequality mostly combined both partners' short-term determinants with summary indicators (Frémeaux & Leturcq, 2020; Grabka et al., 2015). As wealth accumulation is a long-term process, short-term measures, such as current marital status, are not sufficient to explain wealth disparities in later life. Summary measures of isolated events, such as the number of years in full-time employment, can neither capture the stability nor the temporal dimension of the underlying life course processes.

Third, this study follows comparative life course research on economic well-being in later life (Fasang et al., 2013; Madero-Cabib & Fasang, 2016) by examining how the mix of policies and institutions shape within-couple wealth inequality. We extend comparative wealth research (Semyonov & Lewin-Epstein, 2013) by discussing how the British and Western German contexts shape the wealth accumulation processes throughout both partners' life courses. The British UKHLS and the German SOEP provide unique survey data with wealth measured at the personal level. We excluded Eastern Germany due to fundamental differences in the historical life course and welfare regime. We compared cohorts born between the 1920s and 1960s, covering post-war to baby boomer generations whose careers developed in increasingly egalitarian but predominantly traditional welfare states. Whereas Britain has experienced a rapid post-war expansion in women's labor force participation towards part-time employment, the change from a female homemaker to a part-time carer model started moderately in Germany in the 1970s. Further, country differences in labor market, housing, and financial systems might shape the within-couple gender wealth gap.

2 Theoretical framework

Following the *life course framework* (Elder, 1994; Mayer, 2005), within-couple gender wealth disparities in later life can be understood as the outcome of both partners' prior life experiences. Its guiding principle of *linked lives* offers a perspective for exploring partners' interdependent employment biographies, stating that they mutually shape their life paths and respective wealth outcomes in later life. The interplay of both partners' employment biographies is further embedded in institutional and normative arrangements that shape their wealth accumulation processes throughout the life course.

This study takes a dyadic perspective to examine how individuals' employment and marriage paths shape within-couple gender wealth inequality in later life through different patterns of transitions over life courses. Besides the duration each partner spends in a certain employment status, also the stability of their constellation as well as the timing of certain events describe essential characteristics. Of particular relevance is the entry into marriage, which marks a turning point for individuals' wealth accumulation processes by changing economic and legal arrangements, particularly addressing the sharing and exchange of assets (Lersch, 2017b; Wilmoth & Koso, 2002).

2.1 The gendered accumulation of personal wealth

Personal wealth accumulation is a long-term process that takes place across the life course via three major pathways. First, individuals can self-accumulate wealth by saving or investing surplus income. In addition, employment-related benefits that supplement earnings shape the accumulation of assets. Common benefits include voluntary retirement plans, stock options, life insurance, building loan contracts, and performance-related bonus payments (Chang, 2010, p. 41). Second, individuals accrue wealth by receiving financial transfers in the form of inheritances or *inter vivos* transfers. Third, wealth replicates itself exponentially through the mechanism of compound interest.

Women and men face unequal conditions when it comes to wealth accumulation. Whereas inheritances and *inter vivos* transfers are an important component of household wealth in Britain and Germany (Alvaredo et al., 2017), prior literature has shown that gender wealth disparities are primarily shaped by differences in women's and men's labor market participation (Grabka et al., 2015; Sierminska et al., 2018). Women's capacities to accumulate wealth are also restricted with similar career paths due to gender differentials in income and occupational classes (Chang, 2010).

2.2 The redistribution of economic resources within couples

Whereas prior research has addressed couples' decision-making regarding wealth (Rowlingson & Joseph, 2010), the way how partners mutually shape their wealth accumulation processes remains largely unclear. Prior research on money management has differentiated between three types of income redistribution (Bennett, 2013). First, spouses might redistribute money driven by norms of marital caring and togetherness. Second, spouses can be legally obliged to share money in times of need, such as unemployment. Third, income pooling might be applied in couples with an unequal division of labor to compensate the partner specializing in household production. In male breadwinner couples, for instance, women are likely to receive a housekeeping allowance by their partners (Vogler et al., 2006).

Extending literature on income within couples (Bennett, 2013), partners might use the money available in the household not only for consumption but also for personal wealth accumulation. Depending on their interests, they might use the redistributed income either partly or completely for savings or investments. Under a housekeeping allowance, women might thus use part of the received money to build up savings independent from the partner. Individuals might also receive money from the partner as a contribution to their personal wealth holdings, for instance as a gift or a private credit. As couples usually pool at least parts of their wealth (Rowlingson & Joseph, 2010), they are likely to redistribute money through investments in joint assets. Of particular relevance is housing, which constitutes most couples' largest investment and is commonly jointly owned by both partners. If both partners share the legal ownership of an asset, one's financial contribution constitutes a half-sized investment in both partners' wealth portfolios. Therefore,

joint investments constitute another way of compensating for economic imbalances resulting from an unequal division of labor (Nutz & Lersch, 2021). Although we cannot empirically observe the financial redistribution between partners throughout the life course, this framework provides theoretical guidance.

Couples' wealth accumulation processes are strongly impaired by union dissolution (Boertien & Lersch, 2020). The economic consequences of separation last several years and fundamentally disrupt investments in joint assets and respective redistribution processes within couples. Therefore, the present study exclusively considers couples in their first marriage to rule out the influence of former marriages on the association between partners' employment biographies and the within-couple gender wealth gap in later life. As men and women within stable marriage experience a wealth premium (Lersch, 2017b; Wilmoth & Koso, 2002), we expect to obtain conservative estimates of the wealth gap among first-married couples.

3 Context differences

Examining the way the macro-level contexts of Britain and Western Germany shape the association between partners' employment biographies and the within-couple gender wealth gap in later life, we follow a comparative life course perspective (Mayer, 2005). Thus, we do not examine the effects of specific institutional differences but consider the country-specific package of institutions and policies that shape partners' wealth accumulation processes throughout the life course (Aisenbrey & Fasang, 2017; for an overview, see Supplement S1, Table A1). Both countries shared a history as strong male breadwinner states and experienced an increase in women's labor market participation throughout the second half of the 20th century (Trappe et al., 2015). Whereas female homemakers were more prevalent in Western Germany, Britain developed faster towards a male breadwinner/female part-timer model across cohorts (McMunn et al., 2015). Until the 21st century, Britain is characterized by these couples, whereas women in Western Germany are commonly part-time employed or homemaking. To capture these different convergence processes, we consider the employment constellations among couples whose birth cohorts ranged from the 1920s to the 1960s.

Both countries share similar marital property regimes during marriage, where spouses remain the sole owners of their wealth. Under Germany's community of accrued gains, wealth (including inheritances and transfers) accumulated before and during marriage remains in personal ownership. Upon divorce, the surplus gains of all assets accrued during marriage are split equally between both ex-spouses. In Britain, no statutory marital property regime exists and property rights (including inheritances and transfers) are maintained throughout marriage. At divorce, courts have wide discretion in determining the division of assets.

Historically grown policy differences between Britain and Western Germany have shaped the division of labor within couples across cohorts. Whereas married couples in Britain are taxed like single households, Germany upholds its joint taxation originally introduced in 1958, incentivizing a low labor force participation for women. Further, German women's ability to engage in employment has been impaired by the lower availability of public childcare compared with Britain. Despite increases in the enrollment rates in early childcare provision in both countries over time, they have remained considerably larger in Britain at 37% compared with 17% in Germany in 2005 (OECD, 2019).

Britain and Western Germany share similar trends in partnership stability in terms of marriage and divorce rates over the last 60 years and across the cohorts under study (Supplement S1, Figure A1 and Table A2). Our underlying sample of couples in their first marriage can therefore be considered similar in their composition across both countries.

Societal characteristics fundamentally shape how and particularly through which assets individuals accumulate wealth. Within couples, wealth accumulation through homeownership is particularly relevant, as it constitutes most couples' largest joint investment (Joseph & Rowlingson, 2012). Whereas the German system can be characterized as static, Britain represents a dynamic housing system. Supported by a high degree of deregulation and sophisticated mortgage products, British couples are likely to repeatedly trade properties over the life course (Toussaint & Elsinga, 2009). In 1979, the British government introduced the *Right to Buy* scheme, which further strengthened the asset-based welfare through low-price sales of around two million

social and public houses (Lowe et al., 2012). In Germany, high deposit requirements, transaction costs, and tax burdens characterize homeownership as a once-in-a-lifetime investment with restricted access. Consequently, wealth accumulation through joint investments in homeownership should play a larger role for couples in Britain. Due to the equalizing function of joint wealth holdings, we expect British women to benefit more strongly from joint homeownership as a means of economic compensation, resulting in a smaller gender wealth gap than in Germany.

The generosity of welfare spending sets different opportunity and need structures for individuals' wealth accumulation (Semyonov & Lewin-Epstein, 2013). Resulting from lower levels of welfare spending, employment should be more relevant for wealth accumulation in Britain to ensure their economic well-being compared with Germany. During unemployment, however, less generous benefits in Britain impair wealth accumulation. Both countries have comparable structures of unemployment benefits, with comprehensive contribution-based benefits for the first time in unemployment (*Jobseeker's Allowance* of six months in Britain (slightly longer before 1996) and twelve months of *unemployment benefit I* in Germany) being replaced by lower minimum income schemes. With the Hartz reforms in 2005, Germany has somewhat converged with Britain by reducing the benefits for the long-term unemployed. For the birth cohorts under study, however, unemployment is unlikely to be a mass phenomenon characterizing employment biographies due to a relatively stable economic climate.

Despite similar average working hours in part-time employment in both countries (see Supplement S1, Table A1), Britons should be less likely to build up wealth through part-time employment. Many part-time positions in Germany have benefited from the *EU Directive on Part-Time Work* in 1997, making non-discrimination against part-time workers a legal principle (Gallie et al., 2016). In Britain, the growth of part-time employment has emerged earlier, resulting in stronger occupational segregation in part-time employment. In Germany, part-time positions are more likely to be covered by access to pension entitlements (Fasang et al., 2013), with access to occupational and private pension wealth being crucial for wealth accumulation. As women

remain the prevalent group of part-timers in both contexts, we expect to observe a larger within-couple gender wealth gap in couples with female part-timers in Britain than in Germany.

4 Data and method

4.1 Data

We used data from the German Socio-Economic Panel Study (SOEP; v35, doi:10.5684/soep-core.v35; Goebel et al., 2019) and Understanding Society – The UK Household Longitudinal Study (UKHLS; doi:10.5255/UKDA-SN-6614-13; University of Essex, 2019). We drew on survey waves that took place in the same year – wave 2017 of the SOEP and wave 8 of the UKHLS – collecting information on wealth and debts of all adult household members, complemented by a rich set of socio-demographic characteristics. Both data sets included individuals' retrospective employment and marital biographies. For Britain, we integrated retrospective data from the UKHLS and its predecessor, the British Household Panel Survey (BHPS), following Wright (2020).

For the analyses, we imputed missing values separately for Britain and Germany using chained equations with Stata's *mi* procedure (version 16.1) under the assumption of missing at random. For the SOEP, we relied on multiply imputed wealth measures by the SOEP team (Grabka & Westermeier, 2015). A total of five imputations was created. An overview of the analytical and auxiliary variables included in the imputation process and detailed information on the imputation procedure is provided in Supplement S1, Section "Multiple Imputation" and Tables A3 and A4.

4.2 Sample

This study focused on wealth inequality in later life among different-sex couples in their first marriage in Britain and Western Germany. We started from a sample of 8,361 married couples in Britain and 6,957 married couples in Germany, providing individual-level information on wealth. The sample selection followed three steps separately for each country. First, we selected couples where both members were born in Britain or Western Germany, excluding 2,148 couples in the

UKHLS and 3,486 couples in the SOEP. This selection is due to fundamental institutional differences between former East and West Germany as well as other countries.

Second, we selected couples in which the female partner is aged 55 or older, excluding 2,904 couples in Britain and 1,834 couples in Western Germany. In this age group, the wealth outcomes of prior employment biographies become present. Third, we selected couples in their first marriage, excluding 629 couples in Britain and 264 couples in Western Germany (see Supplement S1, Figure A2 for a full account of the sample selection).

Our final analytical samples included 2,649 couples in their first marriage in Britain, with women born between 1924 and 1962, and 1,378 couples in their first marriage in Western Germany, with women born between 1925 and 1962. The sample and its marital characteristics are similarly distributed across cohorts for both countries (Supplement S1, Table A2). We therefore assume that selectivity on the outcome will not majorly distort the results.

4.3 Measurement

4.3.1 Dependent variable

To measure wealth inequality, our dependent variable was the within-couple wealth gap, defined as the difference between the male and the female partner's personal net wealth (Grabka et al., 2015). A positive wealth gap indicates that the man has higher wealth than the woman. Personal net wealth measured the sum of all personally owned assets minus liabilities, which is either individually held by individuals or their share of jointly owned wealth. By harmonizing the wealth information available in the British and German data, we derived a comparable measure including owner-occupied housing, financial assets (such as savings, stocks, or bonds), life insurances, and private pension plans, whereas liabilities covered mortgages, consumer credits, and student loans. The SOEP wealth module also collected information on the values held in further real estate, business assets, and tangible assets (such as jewelry or gold), which we considered in supplementary analyses.

Before calculating the gender wealth gap, we adjusted personal wealth measures for inflation using the consumer price index, transformed British Pounds into Euro, and top- and bottom-coded

the extreme 0.1 percent of the reported values. In the multivariable analyses, we applied a rank transformation to express the proportion of couples having a smaller wealth gap than another couple. With a range from 0 to 1, the ranked wealth measure depicts the relative position of different couples in the within-couple wealth inequality distribution. Compared with the absolute wealth gap, the ranked measure reduces the influence of extreme wealth observations at both ends of the wealth gap distribution.

4.3.2 Independent variables

The main explanatory variable of dyadic employment biographies was built in three steps to leverage the dynamic interplay of employment constellations within couples. First, individual employment states with yearly observations from age 20 to 55 were constructed from the four self-reported states "full-time employed," "part-time employed," "parental leave," and "out of labor" (including unemployment, homemaking, education). Second, we matched spouses and combined their individual employment states. This allowed us to define the couple's employment constellation in each year as the combination of both partners' employment states. The resulting alphabet included the ten states: 1) dual earner, 2) male breadwinner/female part-timer, 3) male breadwinner/female homemaker, 4) female breadwinner, 5) low work intensity couple, 6) parental leave couple as well as individuals' states before marriage in 7) full-time employment, 8) part-time employment, 9) out of labor, and 10) parental leave. See Table 1 for the operationalization of individual and dyadic employment states. Third, we combined employment and marital states to obtain dyadic employment biographies in the form of sequences, which capture the division of labor over time, including the duration, timing, and sequencing of employment constellations before the wealth measurement. In addition, by considering parental leaves, we captured changes in labor division due to childbearing. See Table 2 for a fictitious example of the construction of dyadic employment biographies in the form of sequences.

4.3.3 Control variables

We considered a rich set of control variables that preceded both the independent and the dependent variables. We controlled for both partners' birth cohorts ("<1943", "1943-1952", and

Table 1 Operationalization of individual and dyadic employment states

		female partner			
		full-time	*part-time*	*out of labor*	*parental leave*
male partner	*full-time*	dual earner	male breadwinner female part-timer	male breadwinner female homemaker	parental leave couple
	part-time	female breadwinner	low work intensity couple	low work intensity couple	parental leave couple
	out of labor	female breadwinner	low work intensity couple	low work intensity couple	parental leave couple
	parental leave	parental leave couple	parental leave couple	parental leave couple	parental leave couple

Note: "Low work intensity couples" include couples in which both partners are not full-time employed. Due to sample size limitations, we do not further differentiate between individuals in part-time employment and those out of labor among low work intensity couples.

"1953-1952" for women; "<1943", "1943-1952", "1953-1952", and ">1962" for men), respondents' and their parents' educational levels ("low" (primary or lower), "intermediate" (secondary), "high" (upper secondary)), and region type ("urban"/"rural", derived from the Rural and Urban Classification of Output Areas from the Office for National Statistics in the BHPS and the spatial category by the Federal Office for Building and Regional Planning in the SOEP). In addition, we controlled for both partners' age, its squared transformation, and the household's total net worth. To maximize the comparability of estimates, controls were identical for both Britain and Western Germany. As additional information on family characteristics and inheritances was available in the SOEP, we included both in supplementary analyses.

4.4 Analytical strategy

The analyses were conducted separately for each country and proceeded in three steps. First, we employed sequence and cluster analyses to group the dyadic employment biographies. Second, we provided descriptive statistics on the distribution of the within-couple gender wealth gap, overall and across clusters. Third, we employed the clusters as categorical predictors of the rank-transformed gender wealth gap in a multivariable OLS regression framework. The coefficients in

Table 2 Example of dyadic employment biography of a female and male partner, combining individual employment and marital status over time

	t1	t2	t3	t4	t5
female employment status	out of labor	full-time	part-time	part-time	out of labor
male employment status	full-time	full-time	full-time	full-time	full-time
female marital status	single	married	married	married	married
male marital status	single	married	married	married	married
female dyadic employment biography	out of labor	dual earner	male breadwinner female part-timer	male breadwinner female part-timer	male breadwinner female homemaker
male dyadic employment biography	full-time	dual earner	male breadwinner female part-timer	male breadwinner female part-timer	male breadwinner female homemaker

our analyses capture mean differences across the wealth gap distribution. As predictors, we included the clusters derived from females' dyadic employment biographies, given that dyadic employment biographies are identical for married individuals by construction. Therefore, considering both partners in the regressions would have generated multicollinearity issues. We preferred using female over male dyadic biographies due to the larger heterogeneity in women's employment biographies before marriage in the contexts under study. All analyses therefore included individual-level predictors, a couple-level dependent variable, and both partners' control variables.

4.4.1 Sequence analysis of dyadic employment biographies

We employed sequence analysis, a class of techniques applied in social sciences to analyze categorical states' trajectories, accounting for timing, sequencing, and duration. Sequence analysis is commonly used to quantify the distance between different work or family trajectories (Aisenbrey & Fasang, 2017). It fits well with our theoretical considerations on the relevance of the dynamic interplay of couples' division of labor. To compute the distances between two

sequences, we rely on Optimal Matching (OM), calculating the minimum cost of turning one sequence into another based on a set of transformation operations (substitution, insertion, deletion). We chose OM due to its primary sensitivity to duration beyond sequencing and timing (Studer et al., 2016). In line with other studies on work-family trajectories (Aisenbrey and Fasang, 2017), we set the substitution cost equal to twice the cost of insertion and deletion. To summarize the distances between all possible pairs of individual sequences, we computed the full pairwise matrix across female dyadic employment biographies.

After identifying patterns with sequence analysis, we ran Ward's cluster analysis to group the sequences into meaningful groups of internally homogeneous and externally heterogeneous clusters. Quality measures assessing the clustering capacity and coherence of assignment supported an eight-cluster solution for Britain and a seven-cluster solution for Western Germany (Supplement S1, Figures A3 and A4). Theoretical and analytical reasons supported these decisions. In particular, we aimed to obtain a comparable set of clusters across countries that depicts the heterogeneity of couples' dyadic employment biographies (focusing on their stability and their timing of marriage) as well as two highly homogenous and therefore comparable reference groups. The clusters and the resulting estimates were robust to the use of other dissimilarity measures with a transition-based cost matrix, such as Optimal Matching of spell sequences (OMspell) and Dynamic Hamming Distance (DHD; Supplement S1, Table A5, Figure S1). A cautionary note should be made: As every model of age-graded trajectories comes with uncertainty, the exact number of clusters obtained should not be reified (Warren et al., 2015).

5 Results

5.1 Clusters of dyadic employment biographies

Figures 1 and 2 present relative frequency index plots, showing a set of 100 representative sequences (medoids) of female dyadic employment biographies from ages 20 to 55 for Britain and Western Germany (henceforth referred to as Germany; see Supplement S1, Tables A6 and A7 for descriptive statistics). Each line depicts the dyadic employment biography of a representative woman from ages 20 to 55, sorted by age at marriage. The results reflect the

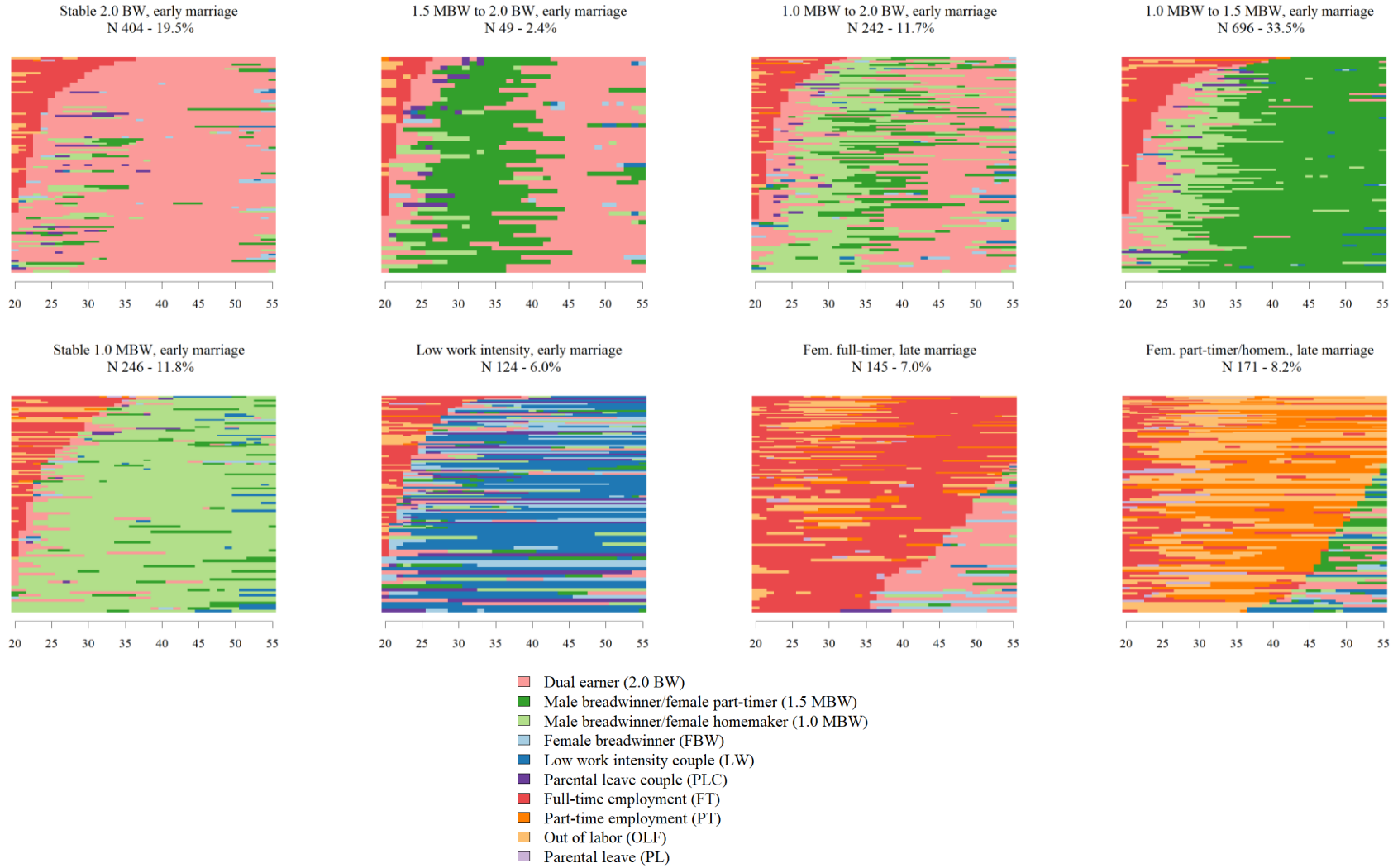
institutional differences between both contexts. Women in Germany were more likely to take over the role as homemakers and British women as part-time employed secondary earners. Despite these differences, we obtained largely similar patterns of dyadic employment biographies – although with varying sample sizes.

First, we identified a cluster of stable dual earners in both countries (reference clusters), which was larger in Britain (19.5%) than in Germany (10.6%). In Britain, two additional dual earner clusters were characterized by women's employment disruptions either due to longer periods of homemaking (11.7%) or part-time employment (2.4%) before transitioning to full-time employment between ages 30 and 40. In Germany, one additional dual earner cluster consisted of couples with more volatile female employment. Second, male breadwinner/female part-timer couples formed another group of typical trajectories. In Britain, this was composed of a large group of women transitioning from female homemaking to part-time employment around age 35 (33.5%). In Germany, this was composed of one cluster showing great duration in part-time employment (14.6%), one cluster with less stability (12.6%), and one cluster where a male breadwinner/female part-timer division of labor was preceded by female homemaking (16.4%). Third, whereas stable male breadwinner/female homemaker couples were present in Britain (11.8%), they were more widespread in Germany, accounting for one-fourth of the sample (24.3%). Fourth, in Britain, three marginal groups were composed of couples showing low work intensity (6.0%) and late married couples in which the female career was characterized either by a high (7.0%) or a low (8.2%) labor market participation. In Germany, we identified one marginal group of late married couples with diverse female employment (7.2%).

5.2 Descriptive results

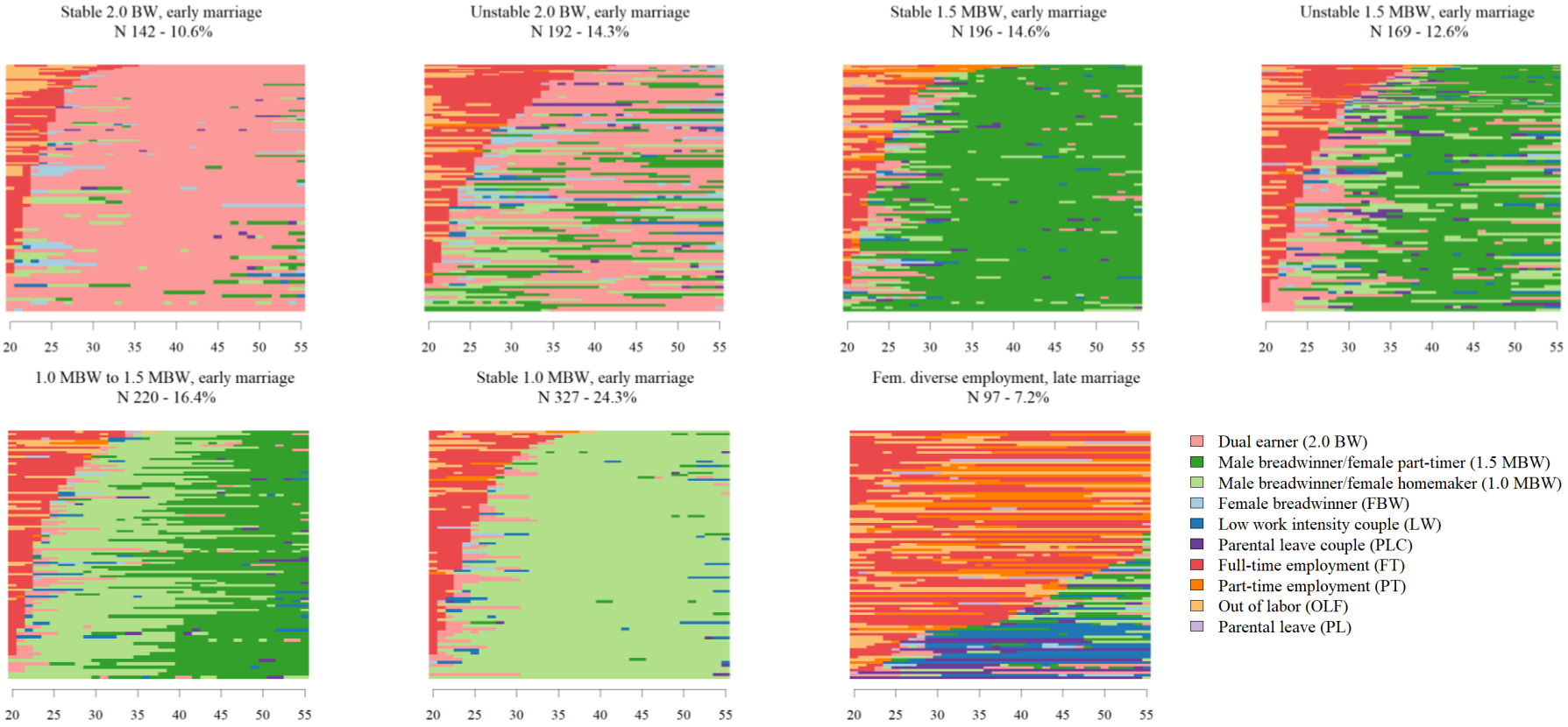
Figure 3 gives an overview of the distributive differences in the gender wealth gap and couples' average total net worth across dyadic employment clusters. Couples in Germany had higher levels of within- couple wealth inequality than British couples. The average within-couple wealth gap was about EUR 10,000 in Britain and EUR 30,000 in Germany. This gap amounted to 3 percent

Figure 1 Relative frequency sequence plots across clusters of female dyadic employment trajectories in Britain



Note: Medoid sequences displayed, sorted by age at marriage. Dissimilarities from medoids are shown in Supplement S1, Figure A5.
Source: UKHLS (2016-18); weighted, non-imputed.

Figure 2 Relative frequency sequence plots across clusters of female dyadic employment trajectories in Western Germany



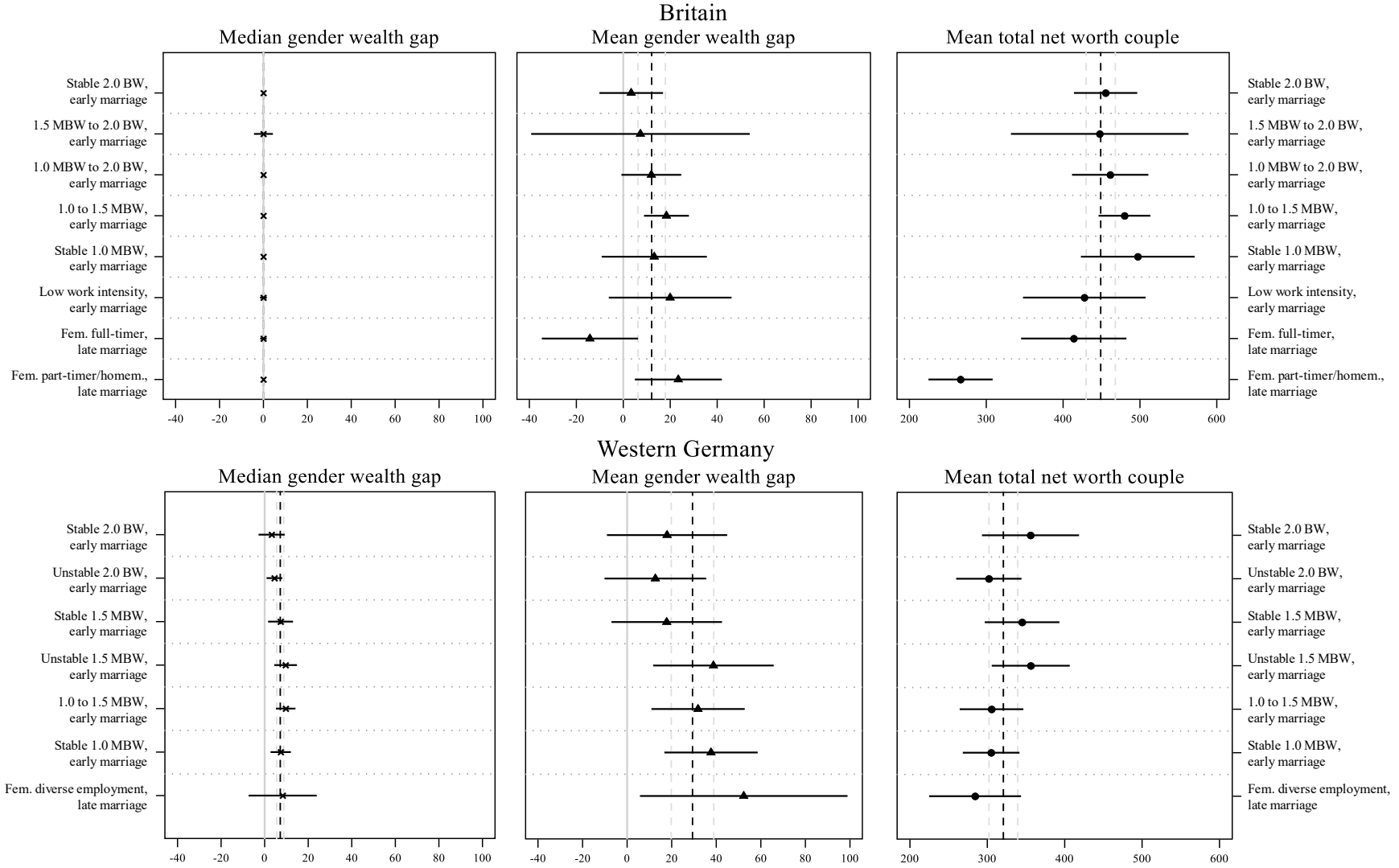
Note: Medoid sequences displayed, sorted by age at marriage. Dissimilarities from medoids are shown in Supplement S1, Figure A6.
Source: SOEP (2017); weighted, non-imputed.

of couples' net worth in Britain and 9 percent in Germany, indicating that gender wealth inequality was considerably higher in Germany not only in absolute terms but also in relation to couples' levels of wealth holdings (see Supplement S1, Tables A6 to A8). German couples had a median of about EUR 7,000, whereas the median gap among British couples was EUR 0.

The lower levels of wealth inequality in Britain might be shaped by country differences in homeownership. In both countries, women owned around half of couples' housing wealth, indicating that joint homeownership might reduce economic imbalances within couples (see Supplement S1, Table A8). In contrast, women held considerably lower shares of financial assets than their male partners. Whereas homeownership rates were considerably higher in Britain, we found no country differences in women's financial wealth holdings (see Supplement S1, Table A1). Thus, housing wealth might shape British couples' higher average total net worth as well as their lower levels of gender wealth inequality compared with German couples.

In Britain, couples with female part-timers or homemakers who married late had the highest average gender wealth gap of EUR 23,000. On average, the gap for this cluster amounted to 9% of couples' net worth, thus being the group with the largest wealth inequality in Britain. Although not significantly different from 0, late married couples with female full-timers were the only cluster with a negative wealth gap, with women owning around EUR 14,000 more than their male partners. In Germany, the median wealth gap was significantly higher than 0 for most couples, indicating a female wealth disadvantage. For stable dual earner couples with early marriage, the average gap of around EUR 3,000 was not significantly different from 0. At the mean, traditional male breadwinner couples in Germany had particularly high levels of gender wealth inequality – for instance, EUR 38,000 for stable male breadwinner/female homemaker couples with early marriage. For these couples, the average proportion of the gender wealth gap of couples' total net worth was 12 percent, which was only exceeded by the late marriage cluster, whose gap amounted to 18 percent of their net worth and a total gap of EUR 52,000.

Figure 3 Median and mean gender wealth gap and total net worth across clusters for couples in Britain and Germany



Note: Depicted on the x-axes is raw wealth in thousand EUR. Whiskers indicate 95% confidence intervals. Solid gray lines indicate 0 wealth gap; black dashed lines indicate overall mean; gray dashed lines indicate 95% confidence intervals of the mean. (M)BW = (male) breadwinner, fem. = female, homem. = homemaker.
Source: UKHLS (2016-2018) and SOEP (2017); weighted, multiply imputed.

5.3 Multivariable results

Figure 4 shows the predicted rank of each dyadic employment cluster on the gender wealth gap distribution in Britain and Germany based on multivariable OLS regression models. Ranging from 0 to 1, the rank measure indicates the proportion of couples having a smaller wealth gap. For Britain, regression results supported the descriptive findings indicating a relatively low level of gender wealth disparities, with all clusters spreading around the middle of the distribution. Against our expectations, stable dual earner couples in Britain had similar levels of wealth inequality than the other clusters, being located close to the middle of the wealth gap distribution at rank .52. Among German couples, we found a higher heterogeneity across dyadic employment clusters. As expected, we found a stronger gender wealth gap to the disadvantage of women in couples with a gender-traditional division of labor, whereas stable dual earner couples had the lowest wealth gap across all clusters at rank .45.

During phases of family formation and childcare in early-mid career stages, women in both countries tended to reduce their labor market participation, although some country-specific differences can be observed. Whereas most German women either left the labor market or remained in part-time employment in the long term, British women also took up full-time employment again after short periods of leave. Against our expectations, couples with women returning to full-time employment after short disruptions did not differ in their wealth inequality from those with long-term employment reductions in Britain. In Germany, both short and long periods of homemaking were strongly and significantly positively associated with gender wealth inequality. The wealth gap was 14 points higher (p=0.004) in couples with homemaking women who returned to part-time employment between ages 35 and 45 and 13 points higher (p=0.023) in couples with stable female homemakers than the reference cluster of stable dual earner couples. Also, both female short-term and long-term part-time employment was significantly associated with the gender wealth gap in Germany. Whereas the wealth gap was 10 points higher in stable male breadwinner/female part-timer couples (p=0.062), the gap was 14 points higher in unstable male breadwinner/female part-timer couples (p=0.029) compared with stable dual earner couples.

Comparing stable with unstable dual earner couples in Germany, the wealth gap was slightly higher for unstable dual earner couples, where women experienced disruptions in their full-time employment (p=0.152). Similarly, stable male breadwinner/female part-timer couples had a slightly higher wealth gap of 4 points than unstable male breadwinner/female part-timer couples (p=0.454). Although both differences were not statistically significant, the results indicate that women who experienced disruptions in their full-time or part-time employment during early-mid career stages might be slightly more impaired in their wealth accumulation than their continuously employed counterparts.

Couples who married late in Germany had a significantly larger gender wealth gap of 12 points than the reference group (p=0.026), which was in line with our expectation that early marriage reduces the gender wealth gap through joint investments. It remains however open whether primarily the marriage timing or the heterogeneous employment biographies of this cluster shaped the wealth gap. In Britain, both late marriage clusters were not clearly associated with the reference cluster of full-timers with early marriage. Female full-timers who married late had a slightly, although not significantly, smaller gender wealth gap than stable dual earner couples (p=0.913), indicating that late marriage might potentially reverse the wealth gap for full-time employed women.

The results suggest, first, that female labor market participation is of different relevance to reduce the gender wealth gap across countries. In Germany, women were strongly economically disadvantaged compared with their partners in couples with a gender-traditional division of labor, whereas we found no comparable wealth disadvantage in Britain. Second, both short and long periods of homemaking among German women increase gender wealth inequality irrespective of the timing throughout the career. Taking up part-time employment after longer periods of homemaking did not reduce the gender wealth gap, indicating that particularly homemaking hinders wealth accumulation. In Britain, in contrast, we found no differences between employment constellations and the gender wealth gap. Third, stability in full-time or part-time employment seemed crucial for married women to reduce the gender wealth gap in Germany. This indicates that the access to employment-related benefits paired with joint investments

throughout marriage is important to reduce the female wealth disadvantage in later life in Germany, whereas women in Britain might benefit from access to assets irrespective of their labor market participation.

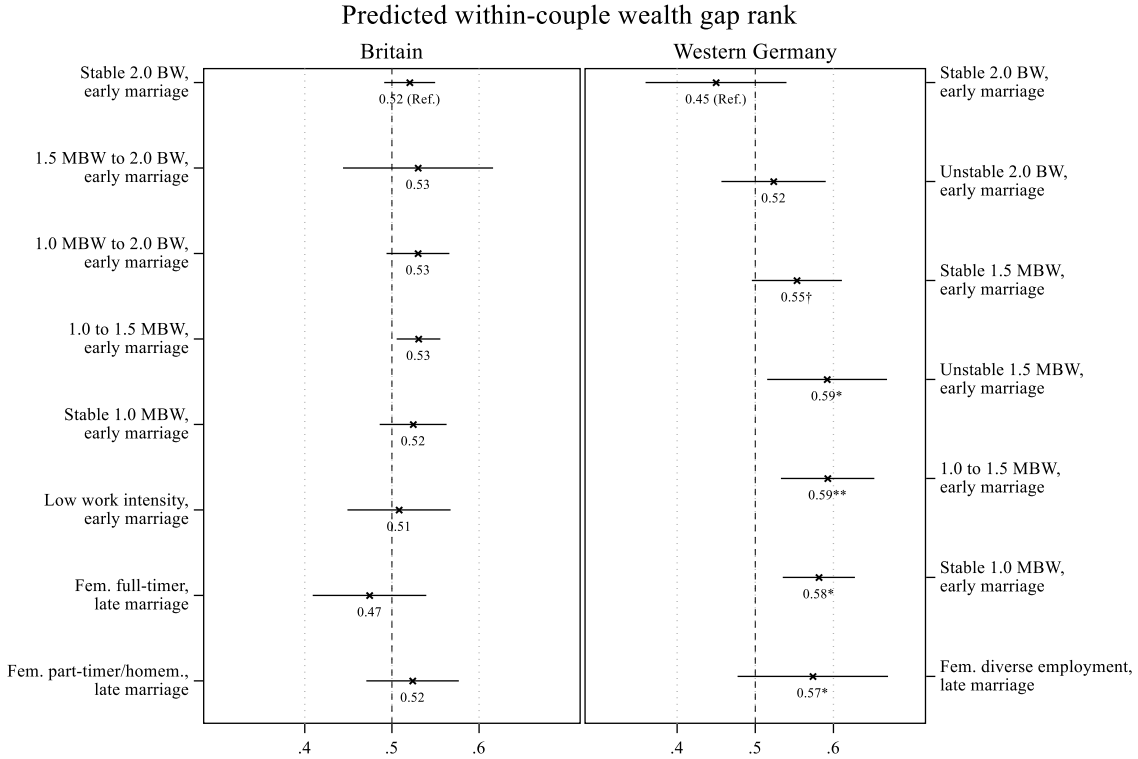
5.4 Supplementary analyses

With several supplementary analyses, we tested the robustness of our findings. First, the results were robust to using IHS-transformed instead of rank-transformed wealth, although the results turned statistically insignificant, which is in line with prior research (Boertien & Lersch, 2020; Supplement S1, Tables S1 and S2). Focusing on relative wealth disparities within couples, we relied on the rank transformation, which – unlike the IHS-transformation – does not consider absolute but relative differences in the wealth (gap) distribution. Differences in the association between employment clusters and the gender wealth gap across the wealth (gap) distribution might therefore explain the slightly different results produced under the IHS-transformation.

Second, we re-ran the analyses on the gross instead of the net gender wealth gap. Debts and liabilities might fundamentally shape the within-couple gender wealth gap, either by reducing or increasing the level of wealth inequality between partners. For instance, wealth inequality might remain hidden if one partner holds substantially larger assets and debts, which cancel out each other. Analyses with gross wealth however provided similar results for Britain and Germany (Supplement S1, Tables S3 and S4), suggesting that debts do not substantially shape wealth disparities within couples in later life. Third, whereas we captured all wealth components surveyed with the UKHLS, the SOEP additionally collected wealth information on respondents' further real estate, business assets, and tangible assets. Although respondents in the UKHLS were not asked to report these assets, they might add them to their responses. The main findings of the regression analysis conducted with the broader wealth measure for the SOEP provided similar results than the harmonized wealth measure (Supplement S1, Table S5), strengthening the comparability of the wealth measurement in our main analyses.

Fourth, the results were robust to using a more comprehensive set of control variables for Germany (Supplement S1, Table S6). The SOEP allowed the inclusion of additional information

Figure 4 Multivariable OLS regression models of employment clusters on the rank-transformed gender wealth gap in later life for couples in Britain and Western Germany



Note: Whiskers indicate 95% confidence intervals. Dashed lines indicate the middle of the rank gap distribution. The models also control for household net worth, both partners' age, education, parental education, region type. Full model results in Supplement S1, Tables A9 and A10. †<.1, * p<.05, ** p<.01, *** p<.001 indicate whether coefficient is significantly different to reference cluster in regression model. (M)BW = (male) breadwinner, fem. = female, homem. = homemaker.
Source: UKHLS (2016-2018) and SOEP (2017); weighted, multiply imputed.

on the family background as well as gifts and inheritances, which were insufficiently measured in the UKHLS. Whereas the number of siblings might constrain the transmission of parental resources, parental birth years may shape their own and their children's access to wealth. Controlling for personal inheritances also ensured that the association between dyadic employment biographies and the gender wealth gap in later life was not driven by transferred wealth.

6 Discussion

In this study, we examined the association between married partners' employment biographies and the within-couple gender wealth gap, defined as the difference between the male and the female partner's personal net wealth. To understand how the institutional setting shapes this

relationship, we examined cohorts born between the 1920s and 1960s in Britain and Western Germany. Both countries share long histories as male breadwinner contexts, although with fundamentally different traditions and opportunities for wealth accumulation. With the British UKHLS (Wave 8) and the German SOEP (2017), we used comprehensively measured survey data on personal wealth paired with retrospective employment and marriage biographies.

Considering both partners' life course predictors, we contributed a dyadic perspective to recent literature on the explanation of the gender wealth gap (Frémeaux & Leturcq, 2020; Sierminska et al., 2018). Further, we extended research relying on short-term or summary measures by taking a dynamic perspective that depicts the long-term consequences of couples' underlying division of labor throughout working life (Sierminska et al., 2010). Hence, this study shed new light on the predictors of gender wealth inequality, paying particular attention to the role of women's in interdependence with their partners' labor market participation in reducing or even overturning the gender wealth gap to a female advantage.

We found evidence for a within-couple gender wealth gap to the disadvantage of women across countries. Despite higher average wealth holdings in Britain, the wealth gap to the disadvantage of women was larger in Western Germany, with a mean of EUR 30,000 (median: EUR 7,000) compared with EUR 10,000 (median: EUR 0) in Britain. The median wealth gap of zero among British couples indicates that partners are likely to fully share their wealth portfolios, which might be driven by the high prevalence of jointly owned housing wealth in Britain.

In Germany, the gender wealth gap to the disadvantage of women was largest in couples with a gender-traditional division of labor. Particularly longer periods of female homemaking or part-time employment combined with homemaking were associated with increasing gender wealth inequality. Stable full-time employment, in return, was associated with a reduction of the within-couple gender wealth gap, whereas both stable and unstable part-time arrangements were disadvantageous for women's wealth holdings. The results indicate that women's access to surplus income and employment-related benefits, such as private pensions or life insurances, is crucial to reduce gender wealth disparities in Germany. Despite the broad coverage of

employment-related benefits in part-time jobs in the German social system (Fasang et al., 2013), being a part-time employed secondary earner seems economically disadvantageous for women. Our results contradict the widespread assumption of marital sharing by showing that husbands might not share their legal wealth ownership equally with their wives with a reduced labor market attachment. Focusing on unpaid work throughout the career might thus create undesired economic dependencies and reduce women's bargaining power within marriage, potentially affecting their well-being far into later life (Tisch, 2021).

In Britain, we found a weaker association between couples' employment constellations and the within-couple gender wealth gap, with male breadwinner and dual earner couples being similarly associated with the gap. Hence, our results reveal country differences in the association between partner's division of labor and within-couple wealth inequality in later life. In line with prior comparative wealth research, Semyonov and Lewin-Epstein (2013) found uniform associations between income, which can be seen as a proxy for employment, and household wealth across countries, whereas our study showed that it might require a within-household perspective to reveal country differences. The findings suggested that both women and men benefit from similar access to wealth, in particular through joint investments in the more comprehensive and accessible housing market (Toussaint & Elsinga, 2009). Although testing the underlying mechanisms exceeds the scope of our study, our comparative results suggest that the central role of homeownership in explaining cross-country differences in wealth might also work within couples (Pfeffer & Waitkus, 2021).

The findings of the current study should be interpreted in light of their limitations. First, the analyses have been based on two distinct surveys with limited comparability. The SOEP measured wealth exclusively at the personal level, whereas the UKHLS combined both an individual and a household level approach. For wealth measures at the household level, we can identify each owner but have to assume equal sharing in Britain. The SOEP provided more detailed information on the shares of each owner. Second, our study faced the usual limitations of wealth analyses, with large measurement error and lacking coverage of the top of the wealth distribution. Whereas most survey data are likely to underestimate wealth (Grabka & Westermeier, 2015), particularly the

SOEP might underreport financial wealth due to the summarized measurement of multiple financial assets. Employing the rank transformation, we partly encountered this issue by examining a couple's relative position in the within-couple wealth gap distribution as the outcome measure. Third, retrospective employment biographies of both the SOEP and the UKHLS relied on self-reported information from respondents about their employment status. The surveys did not define the number of working hours that separate full-time and part-time employment.

Despite these limitations, the findings of this study generated important insights into the wealth accumulation processes of partnered individuals. Whereas we addressed the role of the couple context through the division of labor, an important avenue for future research is the deeper consideration of family biographies (such as children, divorce, or cohabitation with current or former partners) to understand how the interplay of various life domains shapes the gender wealth gap. Further, our study covered nearly holistic employment biographies focusing on employment constellations defined by working hours. Future research should examine how partners' wealth accumulation processes are shaped by differences in further labor market characteristics, such as income or occupational class. In addition, as asset allocation also depends on attitudes and social norms (Rowlingson & Joseph, 2010), further research should aim to disentangle their roles for economic decision-making processes within couples. In particular, the ideal of an individualized marriage characterized by self-development and flexibility (Cherlin, 2004) could entail a greater accumulation of individually held assets throughout the life course. Further, comparative wealth research should move beyond the exclusive consideration of private pension wealth and consider public and occupational pension wealth estimates to fully assess retirees' economic well-being across countries. As our study examined mean differences, future research is needed to examine the association between employment constellations and wealth inequality across the wealth distribution.

Although we focused on older couples, the findings of this study are of relevance for younger generations. Germany develops towards the British liberal pension system with a reduced public pension pillar (Ebbinghaus, 2015), increasing the relevance of personal wealth to ensure retirees' economic well-being. Increasing marital instability might further reduce women's ability to rely

on marriage as economic insurance. Despite increasing female labor market participation and declining numbers of male breadwinner couples, particularly women in Germany might be limited in their ability to self-accumulate wealth if the access to wealth-building tools remains bound to stable labor market participation. In Britain, younger generations face restricted access to wealth accumulation through housing, which is accompanied by a shift towards less homeownership (Toussaint & Elsinga, 2009). Paired with raising marital instability, this development might also contribute to an increase in gender wealth inequality in Britain in the future by reducing the equalizing role of homeownership.

7 Bibliography

Aisenbrey, S., & Fasang, A. E. (2017). The interplay of work and family trajectories over the life course: Germany and the United States in comparison. *American Journal of Sociology*, *122*(5), 1448–1484. doi:10.1086/691128

Alvaredo, F., Garbinti, B., & Piketty, T. (2017). On the share of inheritance in aggregate wealth: Europe and the USA, 1900–2010. *Economica*, *84*(334), 239–260. doi:10.1111/ecca.12233

Bennett, F. (2013). Researching within-household distribution: Overview, developments, debates, and methodological challenges. *Journal of Marriage and Family*, *75*(3), 582–597. doi:10.1111/jomf.12020

Boertien, D., & Lersch, P. M. (2020). Gender and changes in household wealth after the dissolution of marriage and cohabitation in Germany. *Journal of Marriage and Family, 83(1),* 228-242. doi:10.1111/jomf.12705

Chang, M. L. (2010). *Shortchanged: Why women have less wealth and what can be done about it*. Oxford University Press. doi:10.1093/acprof:oso/9780195367690.001.0001

Cherlin, A. J. (2004). The deinstitutionalization of American marriage. *Journal of Marriage and Family*, *66*(4), 848–861. doi:10.1111/j.0022-2445.2004.00058.x

Denton, M., & Boos, L. (2007). The gender wealth gap: Structural and material constraints and implications for later life. *Journal of Women & Aging*, *19*(3–4), 105–120. doi:10.1300/J074v19n03_08

Ebbinghaus, B. (2015). The privatization and marketization of pensions in Europe: A double transformation facing the crisis. *European Policy Analysis*, *1*(1). doi:10.18278/epa.1.1.5

Elder, G. H. (1994). Time, human agency, and social change: Perspectives on the life course. *Social Psychology Quarterly*, *57*, 4–15.

Fasang, A. E., Aisenbrey, S., & Schomann, K. (2013). Women's retirement income in Germany and Britain. *European Sociological Review*, *29*(5), 968–980. doi:10.1093/esr/jcs075

Frémeaux, N., & Leturcq, M. (2020). Inequalities and the individualization of wealth. *Journal of Public Economics*, *184*, 2–19. doi:10.1016/j.jpubeco.2020.104145

Gallie, D., Gebel, M., Giesecke, J., Halldén, K., Van der Meer, P., & Wielers, R. (2016). Quality of work and job satisfaction: Comparing female part-time work in four European countries. *International Review of Sociology*, *26*(3), 457–481. doi:10.1080/03906701.2016.1181839

Goebel, J., Grabka, M. M., Liebig, S., Kroh, M., Richter, D., Schröder, C., & Schupp, J. (2019).

The German Socio-Economic Panel (SOEP). *Journal of Economics and Statistics*, *239*(2), 345–360. doi:10.1515/jbnst-2018-0022

Grabka, M. M., Marcus, J., & Sierminska, E. (2015). Wealth distribution within couples. *Review of Economics of the Household*, *13*(3), 459–486. doi:10.1007/s11150-013-9229-2

Grabka, M. M., & Westermeier, C. (2015). Editing and multiple imputation of item non-response in the wealth module of the German Socio-Economic Panel. In *SOEP Survey Papers, No. 272* (Vol. 18).

Joseph, R., & Rowlingson, K. (2012). Her house, his pension? The division of assets among (ex-) couples and the role of policy. *Social Policy and Society*, *11*(1), 69–80. doi:10.1017/s147474641100042x

Kan, M. Y., & Laurie, H. (2014). Changing patterns in the allocation of savings, investments and debts within couple relationships. *Sociological Review*, *62*(2), 335–358. doi:10.1111/1467-954X.12120

Killewald, A., Pfeffer, F. T., & Schachner, J. N. (2017). Wealth inequality and accumulation. *Annual Review of Sociology*, *43*(1), 379–404. doi:10.1146/annurev-soc-060116-053331

Lersch, P. M. (2017a). Individual wealth and subjective financial well-being in marriage: Resource integration or separation? *Journal of Marriage and Family*, *79*(5), 1211–1223. doi:10.1111/jomf.12406

Lersch, P. M. (2017b). The marriage wealth premium revisited: Gender disparities and within-individual changes in personal wealth in Germany. *Demography*, *54*(3), 961–983. doi:10.1007/s13524-017-0572-4

Lowe, S. G., Searle, B. A., & Smith, S. J. (2012). From housing wealth to mortgage debt: The emergence of Britain's asset-shaped welfare state. *Social Policy and Society*, *11*(1), 105–116. doi:10.1017/s1474746411000455

Madero-Cabib, I., & Fasang, A. E. (2016). Gendered work-family life courses and financial well-being in retirement. *Advances in Life Course Research*, *27*, 43–60. doi:10.1016/j.alcr.2015.11.003

Mayer, K. U. (2005). Life courses and life chances in a comparative perspective. In S. Svallfors (Ed.), *Analyzing inequality: Life chances and social mobility in comparative perspective* (Issue March, pp. 17–55). Stanford University Press.

McMunn, A., Lacey, R., Worts, D., McDonough, P., Stafford, M., Booker, C., …, & Sacker, A. (2015). De-standardization and gender convergence in work–family life courses in Great Britain: A multi-channel sequence analysis. *Advances in Life Course Research*, *26*(1), 60–75. doi:10.1016/j.alcr.2015.06.002

Nutz, T., & Lersch, P. M. (2021). Gendered employment trajectories and individual wealth at older ages in Eastern and Western Germany. *Advances in Life Course Research*, 47, 100374. doi:10.1016/j.alcr.2020.100374

OECD (2019). *OECD family database*. Paris: OECD.

Pfeffer, F. T., & Waitkus, N. (2021). The wealth inequality of nations. *American Sociological Review*, *86*(4), 567-602. doi:10.1177/00031224211027800

Rojas, M. (2019). Affluence: More relative than absolute. In G. Brulé & C. Suter (Eds.), *Wealth(s) and subjective well-being* (pp. 147–166). Springer. doi:10.1007/978-3-030-05535-6_14

Rowlingson, K., & Joseph, R. (2010). *Assets and debts within couples: Ownership and decision-making*. Dorking, UK: Friends Provident Foundation.

Semyonov, M., & Lewin-Epstein, N. (2013). Ways to richness: Determination of household wealth in 16 countries. *European Sociological Review*, *29*(6), 1134–1148. doi:10.1093/esr/jct001

Sierminska, E., Frick, J. R., & Grabka, M. M. (2010). Examining the gender wealth gap. *Oxford Economic Papers*, *62*(4), 669–690. doi:10.1093/oep/gpq007

Sierminska, E., Piazzalunga, D., & Grabka, M. M. (2018). *Transitioning towards more equality? Wealth gender differences and the changing role of explanatory factors over time*. GLO Discussion Paper.

Studer, M., & Ritschard, G. (2016). What matters in differences between life trajectories: A comparative review of sequence dissimilarity measures. *Journal of the Royal Statistical Society. Series A: Statistics in Society, 179(2),* 481–511. doi:10.1111/rssa.12125

Tisch, D. (2021). My gain or your loss? Changes in within-couple relative wealth and partners' life satisfaction. *European Sociological Review*, *37*(2), 271–286. doi:10.1093/esr/jcaa052

Toussaint, J., & Elsinga, M. (2009). Exploring "Housing asset-based welfare". Can the UK be held up as an example for Europe? *Housing Studies*, *24*(5), 669–692. doi:10.1080/02673030903083326

Trappe, H., Pollmann-Schult, M., & Schmitt, C. (2015). The rise and decline of the male breadwinner model: Institutional underpinnings and future expectations. *European Sociological Review*, *31*(2), 230–242. doi:10.1093/esr/jcv015

University of Essex, Institute for Social and Economic Research, NatCen Social Research, Kantar Public (2019). *Understanding Society: Waves 1-10, 2009-2019 and Harmonised BHPS: Waves 1-18, 1991-2009.* (12th ed.). UK Data Service. SN: 6.

Vogler, C., Brockmann, M., & Wiggins, R. D. (2006). Intimate relationships and changing patterns of money management at the beginning of the twenty-first century. *British Journal of Sociology*, *57*(3), 455–482. doi:10.1111/j.1468-4446.2006.00120.x

Warren, J. R., Luo, L., Halpern-Manners, A., Raymo, J. M., & Palloni, A. (2015). Do different methods for modeling age-graded trajectories yield consistent and valid results? *American Journal of Sociology*, 120(6), 1809. doi:10.1086/681962

Wilmoth, J., & Koso, G. (2002). Does marital history matter? Marital status and wealth outcomes among preretirement adults. *Journal of Marriage and Family*, *64*(1), 254–268. doi:10.1111/j.1741-3737.2002.00254.x

Wright, L. (2020). *Producing working-life histories in the BHPS and UKHLS. [data collection]*. Colchester, Essex: UK Data Service. doi:10.5255/UKDA-SN-854327

APPENDIX CHAPTER 2

Table A1 Descriptive statistics for men by employment clusters in Western and Eastern Germany

	Western Germany				Eastern Germany			
	Mean/ Proportion	SD	Min	Max	Mean/ Proportion	SD	Min	Max
	Cluster 1: Full-timers				**Cluster 1: Full-timers**			
Age	69.26	6.97	56.00	96.00	69.26	6.07	56.00	91.00
Partner in household:								
Single	0.16		.00	1.00	0.12		.00	1.00
Married	0.80		.00	1.00	0.84		.00	1.00
Cohabiting	0.04		.00	1.00	0.04		.00	1.00
Number of children	1.41	1.24	.00	7.00	1.26	1.31	.00	7.00
Education:								
No degree	0.01		.00	1.00	0.01		.00	1.00
Lower secondary	0.70		.00	1.00	0.61		.00	1.00
Middle school	0.19		.00	1.00	0.29		.00	1.00
Secondary, technical	0.05		.00	1.00	0.02		.00	1.00
Upper secondary	0.05		.00	1.00	0.07		.00	1.00
Cohort:								
1903-1931	0.17		.00	1.00	0.17		.00	1.00
1932-1941	0.36		.00	1.00	0.40		.00	1.00
1942-1951	0.35		.00	1.00	0.29		.00	1.00
1952-1961	0.12		.00	1.00	0.13		.00	1.00
N	2592				728			

Table A1, continued

	Mean/ Proportion	SD	Min	Max	Mean/ Proportion	SD	Min	Max
	Cluster 2: Extended education				**Cluster 2: Extended education**			
Age	68.85	5.95	56.00	99.00	68.55	5.82	57.00	94.00
Partner in household:								
Single	0.14		.00	1.00	0.15		.00	1.00
Married	0.83		.00	1.00	0.80		.00	1.00
Cohabiting	0.03		.00	1.00	0.06		.00	1.00
Number of children	1.63	1.24	.00	6.00	1.44	1.21	.00	1.00
Education:								
No degree	.00		.00	1.00	.00		.00	.00
Lower secondary	0.12		.00	1.00	0.98		.00	1.00
Middle school	0.12		.00	1.00	0.21		.00	1.00
Secondary, technical	0.12		.00	1.00	0.03		.00	1.00
Upper secondary	0.64		.00	1.00	0.56		.00	1.00
Cohort:								
1903-1931	0.12		.00	1.00	0.09		.00	1.00
1932-1941	0.33		.00	1.00	0.39		.00	1.00
1942-1951	0.42		.00	1.00	0.38		.00	1.00
1952-1961	0.12		.00	1.00	0.14		.00	1.00
N	765				284			
	Cluster 3: Early retirees				**Cluster 3: 50+ dropouts**			
Age	62.60	6.97	56.00	90.00	64.27	4.90	56.00	87.00
Partner in household:								
Single	0.18		.00	1.00	0.15		.00	1.00
Married	0.78		.00	1.00	0.80		.00	1.00
Cohabiting	0.04		.00	1.00	0.05		.00	1.00
Number of children	1.33	1.35	.00	8.00	1.18	1.39	.00	8.00

Table A1, continued

	Mean/ Proportion	SD	Min	Max	Mean/ Proportion	SD	Min	Max
	Cluster 3: Early retirees				**Cluster 3: 50+ dropouts**			
Education:								
No degree	0.02		.00	1.00	0.01		.00	8.00
Lower secondary	0.65		.00	1.00	0.57		.00	1.00
Middle school	0.17		.00	1.00	0.31		.00	1.00
Secondary, technical	0.05		.00	1.00	0.04		.00	1.00
Upper secondary	0.11		.00	1.00	0.08		.00	1.00
Cohort:								
1903-1931	0.08		.00	1.00	0.02		.00	1.00
1932-1941	0.18		.00	1.00	0.37		.00	1.00
1942-1951	0.32		.00	1.00	0.45		.00	1.00
1952-1961	0.42		.00	1.00	0.17		.00	1.00
N	241				215			
	Cluster 4: Weak labour market attachment				**Cluster 4: Early retirees**			
Age	65.04	7.12	56.00	92.00	59.77	3.51	56.00	70.00
Partner in household:								
Single	0.34		.00	1.00	0.28		.00	1.00
Married	0.61		.00	1.00	0.65		.00	1.00
Cohabiting	0.05		.00	1.00	0.07		.00	1.00
Number of children	1.44	1.69	.00	9.00	1.23	1.30	.00	9.00
Education:								
No degree	0.05		.00	1.00	0.03			
Lower secondary	0.66		.00	1.00	0.46		.00	1.00
Middle school	0.09		.00	1.00	0.42		.00	1.00
Secondary, technical	0.04		.00	1.00	.00		.00	.00
Upper secondary	0.15		.00	1.00	0.09		.00	1.00
Cohort:								
1903-1931	0.07		.00	1.00	.00		.00	1.00
1932-1941	0.23		.00	1.00	0.10		.00	1.00
1942-1951	0.36		.00	1.00	0.27		.00	1.00
1952-1961	0.34		.00	1.00	0.63		.00	1.00
N	158				70			

Table A1, continued

	Mean/ Proportion	SD	Min	Max
	Cluster 5: Long-term unemployment			
Age	63.35	4.15	56.00	75.00
Partner in household:				
Single	0.19		.00	1.00
Married	0.72		.00	1.00
Cohabiting	0.09		.00	1.00
Number of children	1.21	1.03	.00	5.00
Education:				
No degree	0.02		.00	1.00
Lower secondary	0.49		.00	1.00
Middle school	0.41		.00	1.00
Secondary, technical	0.02		.00	1.00
Upper secondary	0.07		.00	1.00
Cohort:				
1903-1931	0.01		.00	1.00
1932-1941	0.03		.00	1.00
1942-1951	0.42		.00	1.00
1952-1961	0.55		.00	1.00
N			106	

Note: Data are from SOEP (v34) 2002, 2007, 2012, 2017 (weighted; multiply imputed).

Table A2 Descriptive statistics for women by employment clusters in Western and Eastern Germany

	Western Germany				Eastern Germany			
	Mean/Proportion	SD	Min	Max	Mean/Proportion	SD	Min	Max
	Cluster 1: Full-timers				**Cluster 1: Full-timers**			
Age	69.15	7.62	56.00	93.00	69.20	7.01	56.00	93.00
Partner in household:								
Single	0.48				0.38			
			.00	1.00			.00	1.00
Married	0.47				0.58			
			.00	1.00			.00	1.00
Cohabiting	0.05				0.04			
			.00	1.00			.00	1.00
Number of children	1.16	1.19			1.86	1.13		
			.00	7.00			.00	8.00
Education:								
No degree	0.01				0.01			
			.00	1.00			.00	1.00
Lower secondary	0.48				0.58			
			.00	1.00			.00	1.00
Middle school	0.26				0.25			
			.00	1.00			.00	1.00
Secondary, technical	0.05				0.02			
			.00	1.00			.00	1.00
Upper secondary	0.20				0.14			
			.00	1.00			.00	1.00
Cohort:								
1903-1931	0.21				0.19			
			.00	1.00			.00	1.00
1932-1941	0.28		.00	1.00	0.37		.00	1.00
1942-1951	0.35				0.31			
			.00	1.00			.00	1.00
1952-1961	0.16				0.13			
			.00	1.00			.00	1.00
N	858				880			

Table A2, continued

	Cluster 2: Early retirees				**Cluster 2: Dropouts into part-time/unempl.**			
Age	66.21	8.22	56.00	93.00	63.54	6.37	56.00	92.00
Partner in household:								
Single	0.42				0.29			
			.00	1.00			.00	1.00
Married	0.53				0.65			
			.00	1.00			.00	1.00
Cohabiting	0.05				0.06			
			.00	1.00			.00	1.00
Number of children	1.61	1.42			2.01	1.27		
			.00	10.00			.00	1.00
Education:								
No degree	0.02		.00	1.00	0.01		.00	1.00
Lower secondary	0.63				0.51			
			.00	1.00			.00	1.00
Middle school	0.21				0.42			
			.00	1.00			.00	1.00
Secondary, technical	0.03				.00			
			.00	1.00			.00	.00
Upper secondary	0.10				0.06			
			.00	1.00			.00	1.00
Cohort:								
1903-1931	0.16		.00	1.00	0.08		.00	1.00
1932-1941	0.26				0.13			
			.00	1.00			.00	1.00
1942-1951	0.27				0.25			
			.00	1.00			.00	1.00
1952-1961	0.31				0.54			
			.00	1.00			.00	1.00
N	443				206			

Table A2, continued

	Cluster 3: Full-time returners				**Cluster 3: Part-timers**			
Age	68.18	7.37	56.00	94.00	67.64	7.12	56.00	93.00
Partner in household:								
Single	0.42				0.26			
			.00	1.00			.00	1.00
Married	0.52				0.73			
			.00	1.00			.00	1.00
Cohabiting	0.06				0.01			
			.00	1.00			.00	1.00
Number of children	2.04	1.17			1.99	1.22		
			.00	8.00			.00	7.00
Education:								
No degree	0.02		.00	1.00	0.03		.00	1.00
Lower secondary	0.64				0.65			
			.00	1.00			.00	1.00
Middle school	0.24				0.30			
			.00	1.00			.00	1.00
Secondary, technical	0.02				.00			
			.00	1.00			.00	.00
Upper secondary	0.08				0.03			
			.00	1.00			.00	1.00
Cohort:								
1903-1931	0.18		.00	1.00	0.15		.00	1.00
1932-1941	0.27				0.37			
			.00	1.00			.00	1.00
1942-1951	0.35				0.31			
			.00	1.00			.00	1.00
1952-1961	0.20				0.17			
			.00	1.00			.00	1.00
N	317				157			

Table A2, continued

	Mean/Proportion	SD	Min	Max	Mean/Proportion	SD	Min	Max
	Cluster 4: Part-timers				**Cluster 4: 45+ dropouts**			
Age	66.40	6.69	56.00	98.00	64.01	5.58	56.00	90.00
Partner in household:								
Single	0.27				0.27			
			.00	1.00			.00	1.00
Married	0.71				0.66			
			.00	1.00			.00	1.00
Cohabiting	0.03				0.07			
			.00	1.00			.00	1.00
Number of children	1.87	1.09			1.87	1.18		
			.00	9.00			.00	8.00
Education:								
No degree	0.02		.00	1.00	0.01		.00	1.00
Lower secondary	0.60				0.53			
			.00	1.00			.00	1.00
Middle school	0.22				0.38			
			.00	1.00			.00	1.00
Secondary, technical	0.03				0.01			
			.00	1.00			.00	.00
Upper secondary	0.14				0.08			
			.00	1.00			.00	1.00
Cohort:								
1903-1931	0.08		.00	1.00	0.03		.00	1.00
1932-1941	0.24				0.17			
			.00	1.00			.00	1.00
1942-1951	0.40				0.56			
			.00	1.00			.00	1.00
1952-1961	0.28				0.24			
			.00	1.00			.00	1.00
N		711				269		

Table A2, continued

	Cluster 5: Homemakers to part-time				Cluster 5: Homemakers			
Age	68.53	6.85	56.00	94.00	73.08	8.39	56.00	97.00
Partner in household:								
Single	0.33				0.45			
			.00	1.00			.00	1.00
Married	0.64				0.52			
			.00	1.00			.00	1.00
Cohabiting	0.02				0.03			
			.00	1.00			.00	1.00
Number of children	2.36	1.15			2.60	1.61		
			.00	9.00			.00	10.00
Education:								
No degree	0.01		.00	1.00	0.01			
							.00	1.00
Lower secondary	0.64				0.76			
			.00	1.00			.00	1.00
Middle school	0.26				0.15			
			.00	1.00			.00	1.00
Secondary, technical	0.03				0.01			
			.00	1.00			.00	1.00
Upper secondary	0.06				0.07			
			.00	1.00			.00	1.00
Cohort:								
1903-1931	0.16		.00	1.00	0.39		.00	1.00
1932-1941	0.32				0.42			
			.00	1.00			.00	1.00
1942-1951	0.38				0.15			
			.00	1.00			.00	1.00
1952-1961	0.14				0.03			
			.00	1.00			.00	1.00
N	504				156			

Table A2, continued

	Cluster 6: Homemakers			
Age	71.52	8.57	56.00	98.00
Partner in household:				
Single	0.34		.00	1.00
Married	0.65		.00	1.00
Cohabiting	0.01		.00	1.00
Number of children	2.34	1.38	.00	11.00
Education:				
No degree	0.01		.00	1.00
Lower secondary	0.70		.00	1.00
Middle school	0.21		.00	1.00
Secondary, technical	0.01		.00	1.00
Upper secondary	0.06		.00	1.00
Cohort:				
1903-1931	0.34		.00	1.00
1932-1941	0.37		.00	1.00
1942-1951	0.16		.00	1.00
1952-1961	0.13		.00	1.00
N		1175		

Note: Data are from SOEP (v34) 2002, 2007, 2012, 2017 (weighted; multiply imputed).

Table A3 Individual mean and median housing and non-housing wealth (in thousand EUR) for retired men and women aged 56 and older in Western and Eastern Germany divided by employment clusters

		Employment clusters		Housing wealth	Non-housing wealth
Men	Western Germany	Full-timers	Mean (SE)	82 (104)	65 (229)
			Median (SE)	57 (4)	10 (1)
		Extended education	Mean (SE)	138 (152)	178 (451)
			Median (SE)	117 (5)	42 (4)
		Early retirees	Mean (SE)	61 (94)	40 (161)
			Median (SE)	0 (8)	2 (2)
		Weak labour market attachment	Mean (SE)	43 (101)	29 (108)
			Median (SE)	0 (0)	0 (0)
		All	Mean (SE)	91 (118)	85 (287)
			Median (SE)	64 (4)	12 (1)
	Eastern Germany	Full-timers	Mean (SE)	27 (50)	13 (24)
			Median (SE)	0 (0)	5 (1)
		Extended education	Mean (SE)	30 (57)	32 (76)
			Median (SE)	0 (0)	14 (3)
		50+ dropouts	Mean (SE)	23 (51)	10 (22)
			Median (SE)	0 (0)	0 (1)
		Early retirees	Mean (SE)	22 (37)	6 (27)
			Median (SE)	0 (2)	0 (0)
		Long-term unemployment	Mean (SE)	22 (36)	10 (24)
			Median (SE)	0 (2)	0 (0)
		All	Mean (SE)	26 (50)	16 (41)
			Median (SE)	0 (0)	5 (0)
		Employment clusters		Housing wealth	Non-housing wealth
Women	Western Germany	Full-timers	Mean (SE)	74 (124)	68 (237)
			Median (SE)	0 (0)	8 (1)
		Early retirees	Mean (SE)	60 (106)	34 (159)
			Median (SE)	0 (0)	0 (0)
		Full-time returners	Mean (SE)	62 (97)	34 (115)
			Median (SE)	0 (1)	3 (1)
		Part-timers	Mean (SE)	84 (112)	60 (166)
			Median (SE)	41 (17)	9 (2)
		Homemakers to part-time	Mean (SE)	76 (109)	33 (96)
			Median (SE)	1 (11)	3 (2)
		Homemakers	Mean (SE)	70 (110)	28 (89)
			Median (SE)	0 (0)	0 (0)
		All	Mean (SE)	72 (112)	44 (156)
			Median (SE)	0 (0)	3 (0)

Table A3, continued

		Employment clusters		Housing wealth	Non-housing wealth
Women	Eastern Germany	Full-timers	Mean (SE)	23 (48)	14 (45)
			Median (SE)	0 (0)	5 (1)
		Dropouts into part-time/unempl.	Mean (SE)	20 (37)	11 (30)
			Median (SE)	0 (0)	0 (1)
		Part-timers	Mean (SE)	17 (37)	11 (19)
			Median (SE)	0 (0)	3 (2)
		45+ dropouts	Mean (SE)	19 (37)	11 (35)
			Median (SE)	0 (0)	1 (1)
		Homemakers	Mean (SE)	15 (42)	7 (14)
			Median (SE)	0 (0)	0 (1)
		All	Mean (SE)	21 (44)	12 (38)
			Median (SE)	0 (0)	3 (1)

Note: Own calculations. Untransformed wealth. Standard errors of the median are calculated using the bootstrap method, as the underlying distribution is not normal.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Table A4 OLS regression models of men's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western Germany

	Men in Western Germany		
	Net wealth	Housing wealth	Non-housing wealth
	b/SE	b/SE	b/SE
Empl. clusters (ref.: full-timers)			
Extended education	-0.23	-0.11	-0.03
	0.38	0.46	0.44
Early retirees	-2.13**	-1.28	-2.10**
	0.75	0.69	0.72
Weak labour market attachment	-5.43***	-4.48***	-4.29***
	0.75	0.59	0.70
Birth cohort (ref.: 1903-1931)			
1932 - 1941	-0.00	0.05	-0.06
	0.52	0.55	0.55
1942 - 1951	0.34	0.75	-0.27
	0.61	0.65	0.66
1952 - 1961	0.44	0.53	0.05
	0.82	0.83	0.91
Age	-0.00	0.01	-0.08*
	0.03	0.03	0.04
Age squared	-0.00	-0.01*	0.00
	0.00	0.00	0.00
Years since retirement	-0.01	-0.03	0.01
	0.03	0.03	0.03
Location in childhood (ref: countryside/town)			
City	-0.95***	-1.46***	-0.44
	0.27	0.28	0.29
School education (ref.: no degree)			
Lower secondary	1.82	1.53	0.92
	1.32	1.07	1.28
Middle school	3.20*	2.86*	2.06
	1.32	1.12	1.30
Secondary, technical	4.10**	3.89**	3.19*
	1.39	1.19	1.39
Upper secondary	3.95**	3.63**	3.19*
	1.37	1.18	1.36
Father's education (ref.: no degree)			
Lower secondary	0.87	1.03	0.31
	1.73	1.97	1.69
Middle school	0.58	0.40	0.40
	1.76	2.01	1.77
Upper secondary	0.46	-0.46	0.47
	1.78	2.04	1.83

Table A4, continued

Mother's education (ref.: no degree)			
Lower secondary	-0.41	-0.51	-0.71
	1.00	1.13	0.98
Middle school	0.16	0.50	-1.21
	1.07	1.22	1.11
Upper secondary	-0.26	0.17	-0.47
	1.27	1.41	1.36
Number of siblings	-0.03	-0.04	-0.04
	0.07	0.07	0.08
Father's birth cohort (ref.: 1818-1899)			
1900-1919	-0.29	-0.42	-0.60
	0.41	0.45	0.44
1920-1945	-0.14	-0.27	-0.49
	0.66	0.70	0.74
Mother's birth cohort (ref.: 1845-1899)			
1900-1919	0.01	0.25	0.33
	0.53	0.53	0.51
1920-1944	-0.46	0.04	-0.56
	0.72	0.75	0.79
Inheritances	0.16***	0.11***	0.21***
	0.02	0.03	0.03
Constant	7.51***	5.65**	6.64**
	2.13	2.10	2.27
N		3461	

* p<.05, ** p<.01, *** p<.001

Note: Robust standard errors.

Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Table A5 OLS regression models of men's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Eastern Germany

	Men in Eastern Germany		
	Net wealth	Housing wealth	Non-housing wealth
	b/SE	b/SE	b/SE
Empl. clusters (ref.: full-timers)			
Extended education	0.29	-0.53	0.60
	0.65	0.57	0.64
50+ dropouts	-1.53*	-1.43*	-1.40
	0.72	0.60	0.75
Early retirees	-0.92	-1.05	-0.85
	1.27	1.23	1.31
Long-term unemployment	-2.47*	-0.99	-2.61**
	1.00	0.90	0.94
Birth cohort (ref.: 1903-1931)			
1932 - 1941	-0.08	1.76*	-1.02
	0.80	0.70	0.77
1942 - 1951	0.24	3.44***	-1.45
	0.97	0.91	0.91
1952 - 1961	0.90	3.93***	-1.00
	1.27	1.13	1.23
Age	-0.01	-0.00	-0.03
	0.06	0.05	0.06
Age squared	-0.00	0.01	-0.01
	0.00	0.00	0.00
Years since retirement	-0.03	0.01	-0.04
	0.04	0.04	0.05
Location in childhood (ref: countryside/town)			
City	-1.85***	-2.40***	-1.09*
	0.45	0.39	0.45
School education (ref.: no degree)			
Lower secondary	3.48	1.23	2.32
	2.44	2.29	2.10
Middle school	3.68	1.32	2.86
	2.50	2.33	2.14
Secondary, technical	4.22	0.97	3.31
	2.63	2.55	2.35
Upper secondary	5.56*	1.47	4.91*
	2.47	2.36	2.16
Father's education (ref.: no degree)			
Lower secondary	-1.98	0.25	-3.38
	3.87	2.74	3.61
Middle school	-1.08	0.53	-2.19
	3.89	2.89	3.68
Upper secondary	-1.55	0.85	-3.27
	4.02	2.93	3.74

Table A5, continued

Mother's education (ref.: no degree)			
Lower secondary	1.90	-0.36	2.66
	2.44	1.49	2.22
Middle school	2.09	0.46	2.78
	2.58	1.78	2.37
Upper secondary	-0.42	0.05	0.97
	3.21	2.10	2.99
Number of siblings	-0.24*	-0.13	-0.23
	0.12	0.11	0.12
Father's birth cohort (ref.: 1818-1899)			
1900-1919	-0.76	-0.40	0.10
	0.73	0.66	0.75
1920-1945	-1.06	-0.08	-0.48
	1.21	1.15	1.23
Mother's birth cohort (ref.: 1845-1899)			
1900-1919	-0.24	0.19	-0.62
	0.81	0.79	0.82
1920-1944	-0.41	-0.67	-0.59
	1.25	1.17	1.25
Inheritances	0.17**	0.16*	0.20***
	0.05	0.06	0.05
Constant	6.25	1.69	6.99*
	3.58	3.07	3.28
N		1242	

* p<.05, ** p<.01, *** p<.001

Note: Robust standard errors.

Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Table A6 OLS regression models of women's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western Germany

	Women in Western Germany		
	Net wealth	Housing wealth	Non-housing wealth
	b/SE	b/SE	b/SE
Empl. clusters (ref.: full-timers)			
Early retirees	-0.94	0.12	-1.23*
	0.51	0.49	0.51
Full-time returners	-0.49	0.21	-0.74
	0.51	0.51	0.55
Part-timers	0.14	0.78	-0.06
	0.39	0.41	0.42
Homemakers to part-time	-0.19	0.52	-0.92*
	0.42	0.44	0.45
Homemakers	-0.48	0.71	-1.45***
	0.34	0.36	0.38
Birth cohort (ref.: 1903-1931)			
1932 - 1941	0.52	1.04*	-0.25
	0.56	0.50	0.53
1942 - 1951	0.74	1.38*	-0.11
	0.66	0.63	0.63
1952 - 1961	-0.02	1.52	-1.09
	0.82	0.78	0.85
Age	0.00	0.03	-0.02
	0.03	0.03	0.03
Age squared	-0.01**	-0.00**	-0.00
	0.00	0.00	0.00
Years since retirement	-0.05**	-0.04*	-0.05**
	0.02	0.02	0.02
Location in childhood (ref: countryside/town)			
City	-1.35***	-1.59***	-0.84***
	0.26	0.26	0.25
School education (ref.: no degree)			
Lower secondary	1.57	2.70**	0.38
	1.08	0.87	1.02
Middle school	3.33**	3.86***	1.69
	1.10	0.90	1.05
Secondary, technical	3.17*	4.52***	1.30
	1.31	1.16	1.36
Upper secondary	4.45***	5.22***	2.94*
	1.20	0.98	1.18
Father's education (ref.: no degree)			
Lower secondary	0.42	0.30	-0.14
	1.35	1.29	1.31
Middle school	1.27	1.04	0.58
	1.38	1.36	1.36
Upper secondary	1.20	0.44	0.53
	1.38	1.41	1.41

Table A6, continued			
Mother's education (ref.: no degree)			
Lower secondary	1.08	0.45	1.09
	0.97	0.98	0.97
Middle school	0.53	-0.41	0.78
	1.07	1.07	1.10
Upper secondary	0.38	0.19	0.07
	1.26	1.28	1.27
Number of siblings	-0.13	-0.03	-0.19**
	0.07	0.07	0.07
Father's birth cohort (ref.: 1818-1899)			
1900-1919	-0.59	-0.22	-0.27
	0.45	0.44	0.44
1920-1945	-0.57	-0.41	-0.13
	0.73	0.70	0.75
Mother's birth cohort (ref.: 1845-1899)			
1900-1919	0.29	0.20	0.15
	0.49	0.48	0.48
1920-1944	0.61	0.62	-0.19
	0.70	0.71	0.74
Inheritances	0.21***	0.19***	0.23***
	0.02	0.03	0.03
Constant	5.65***	1.35	6.01***
	1.66	1.46	1.59
N		3669	

* p<.05, ** p<.01, *** p<.001

Note: Robust standard errors.

Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Table A7 OLS regression models of women's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Eastern Germany

	Women in Eastern Germany		
	Net wealth	Housing wealth	Non-housing wealth
	b/SE	b/SE	b/SE
Empl. clusters (ref.: full-timers)			
Dropouts into part-time/unempl.	-0.99	0.18	-1.11
	0.69	0.64	0.69
Part-timers	-1.01	-0.92	-0.88
	0.63	0.53	0.61
45+ dropouts	-1.10	-0.54	-0.81
	0.60	0.52	0.57
Homemakers	-0.16	0.09	-0.50
	0.61	0.53	0.63
Birth cohort (ref.: 1903-1931)			
1932 - 1941	0.44	0.51	0.17
	0.65	0.60	0.64
1942 - 1951	1.38	2.30**	0.15
	0.80	0.82	0.83
1952 - 1961	1.34	2.61*	-0.03
	1.04	1.07	1.04
Age	0.05	0.04	0.03
	0.05	0.04	0.04
Age squared	-0.01	-0.00	-0.01*
	0.00	0.00	0.00
Years since retirement	-0.05	-0.04	-0.05
	0.03	0.02	0.03
Location in childhood (ref: countryside/town)			
City	-1.29**	-1.80***	-0.62
	0.40	0.32	0.37
School education (ref.: no degree)			
Lower secondary	-2.83*	-4.37*	1.57
	1.30	1.86	1.60
Middle school	-1.35	-4.05*	3.17
	1.35	1.87	1.68
Secondary, technical	-0.62	-3.82	3.09
	1.64	2.27	2.04
Upper secondary	-1.11	-3.65	3.52*
	1.41	1.95	1.76
Father's education (ref.: no degree)			
Lower secondary	-1.58	-1.21	-1.72
	2.65	2.02	2.53
Middle school	-1.78	-1.30	-1.56
	2.69	2.12	2.56
Upper secondary	-1.81	-2.36	-2.08
	2.83	2.21	2.74

Table A7, continued

Mother's education (ref.: no degree)			
Lower secondary	2.94	0.90	2.43
	1.63	1.25	1.48
Middle school	3.59*	1.63	2.87
	1.80	1.58	1.64
Upper secondary	1.67	1.93	1.28
	2.20	2.07	2.01
Number of siblings	-0.17	-0.23**	-0.05
	0.10	0.07	0.09
Father's birth cohort (ref.: 1818-1899)			
1900-1919	-0.04	-0.05	-0.07
	0.65	0.62	0.63
1920-1945	-1.57	-1.33	-0.60
	1.14	0.95	1.07
Mother's birth cohort (ref.: 1845-1899)			
1900-1919	-0.16	0.13	-0.12
	0.71	0.62	0.70
1920-1944	-0.66	0.19	-1.11
	1.10	0.97	1.10
Inheritances	0.19***	0.08	0.20***
	0.05	0.06	0.05
Constant	9.46**	7.94**	4.52
	2.98	2.70	3.01
N		1480	

* p<.05, ** p<.01, *** p<.001

Note: Robust standard errors.

Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Section A1 Methodological details of employment biographies and sequence analysis procedure

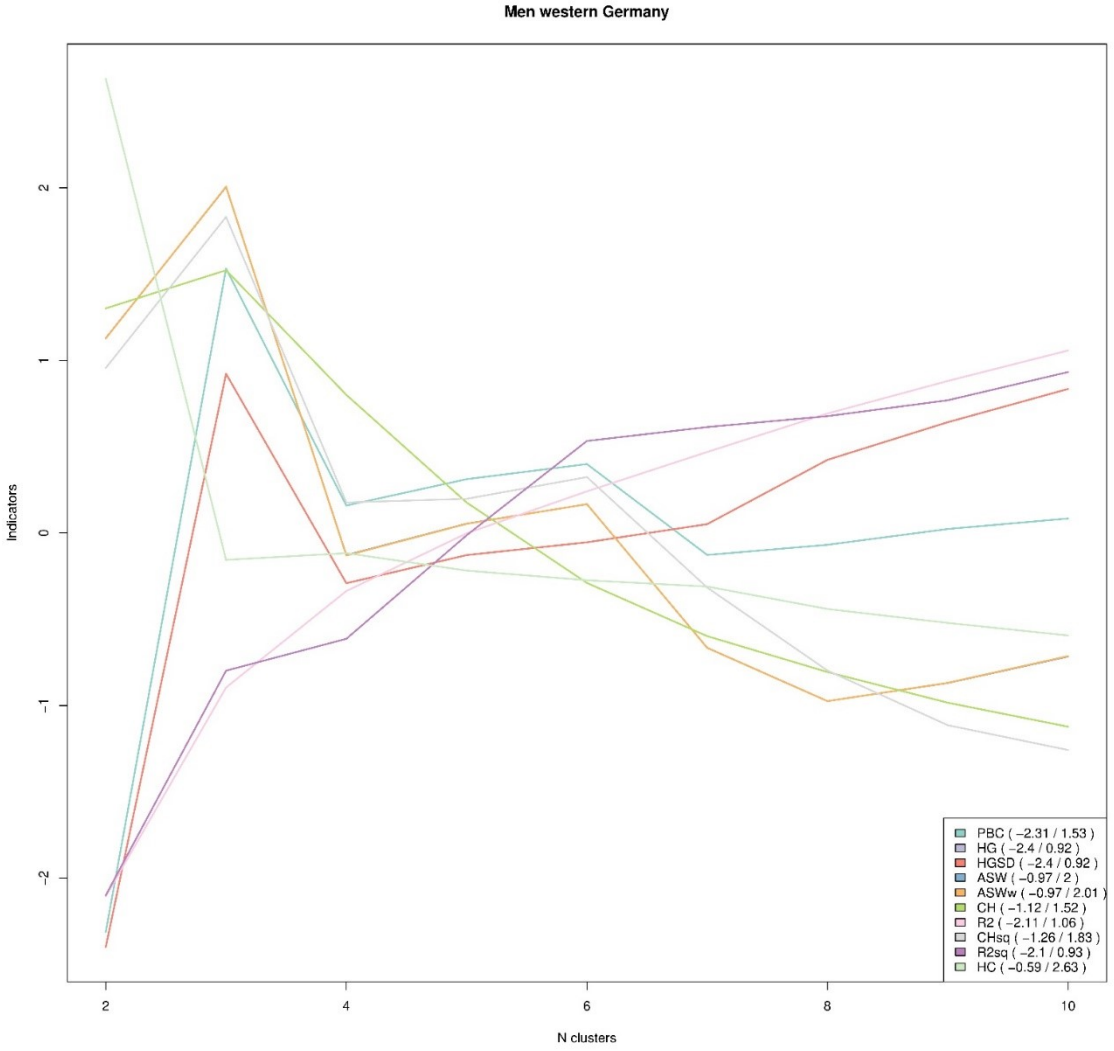
Employment states are self-assessed and do not provide exact information on the number of working hours and the occupation. Therefore, the differentiation between full-time and part-time employment is based on the subjective evaluation of the respondents.

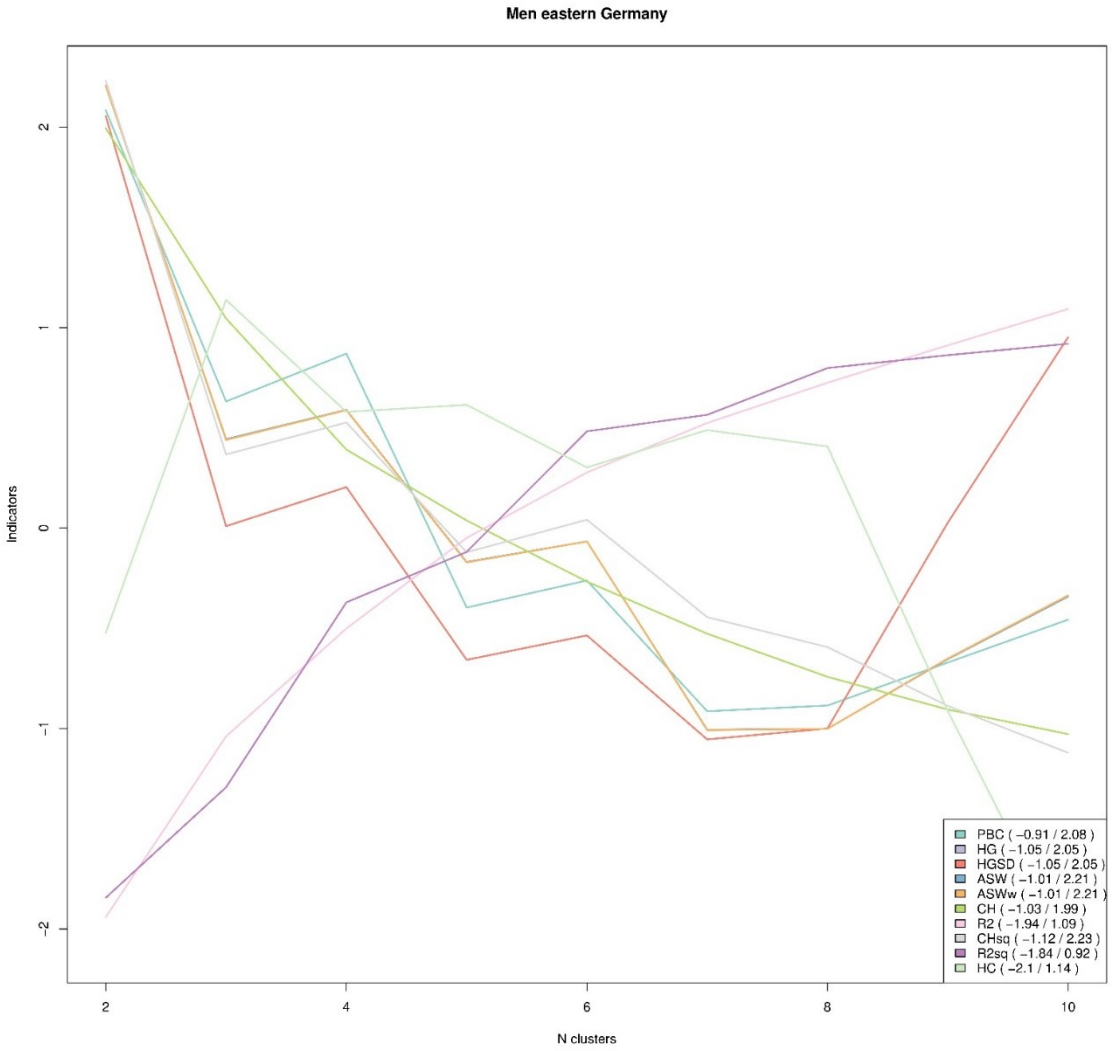
As multiple answers for a given calendar time are possible in the employment biography questionnaire, 3.9% of the spells are overlapping. We correct for overlaps by defining ranking criteria. The ranking is as follows: retirement, unemployment, part-time employment, full-time employment, education, homemaking, other. We prioritize states, such as retirement or unemployment, that restrict the ability to accumulate wealth over other labour market activities. As employment is highly relevant for the accumulation of wealth, we prioritize employment over education or homemaking.

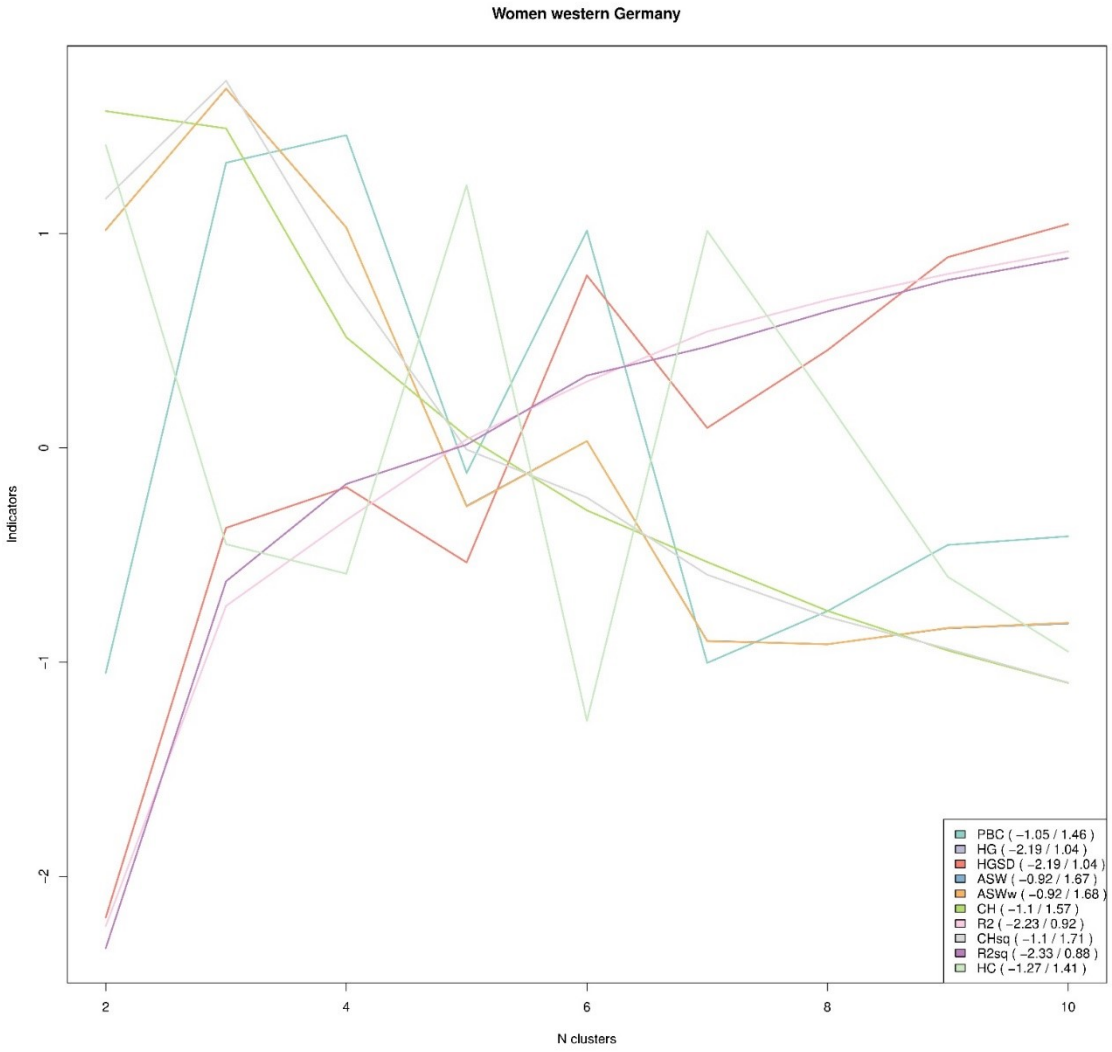
We observe interval censoring in 0.6 percent as well as left and right censoring in 8.5 percent of the sequences. First, we address interval censoring using forward and backward fill in. Single gaps were filled with the preceding status. Multiple gaps were divided into half of preceding and subsequent states. The element in the middle was filled with the preceding status. Second, we fill in left censoring with education if the first valid spell is education. Third, we fill in right censoring with retirement if the last valid spell is retirement. Fourth, we fill in observations with left or right censoring of maximum two years either with the previous or subsequent employment states (randomly chosen).

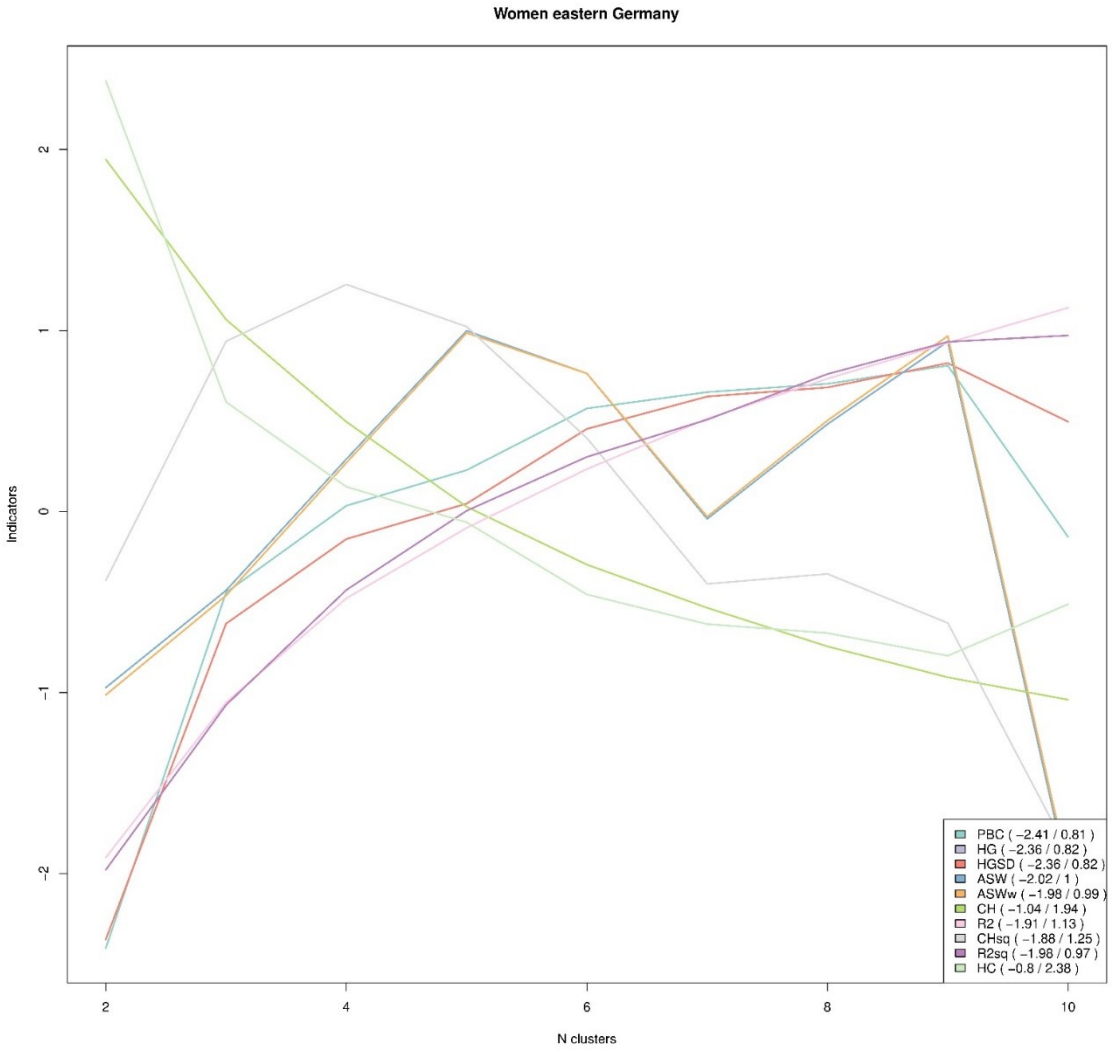
Figure A1 Cluster cut-off criteria for Ward cluster analysis on pairwise distance matrix obtained with sequence analysis

PBC = Point Biserial Correlation, HG = Hubert's Gamma, HGSD = Hubert's Somers' D, ASW = Average Silhouette Width, ASWw = Average Slihouette Width (weighted), CH = Calinski-Harabasz index, R2 = Pseudo R2, CHsq = Calinski-Harabasz index using squared distances, R2sq = Pseudo R2 using squared distances, HC = Hubert's C.



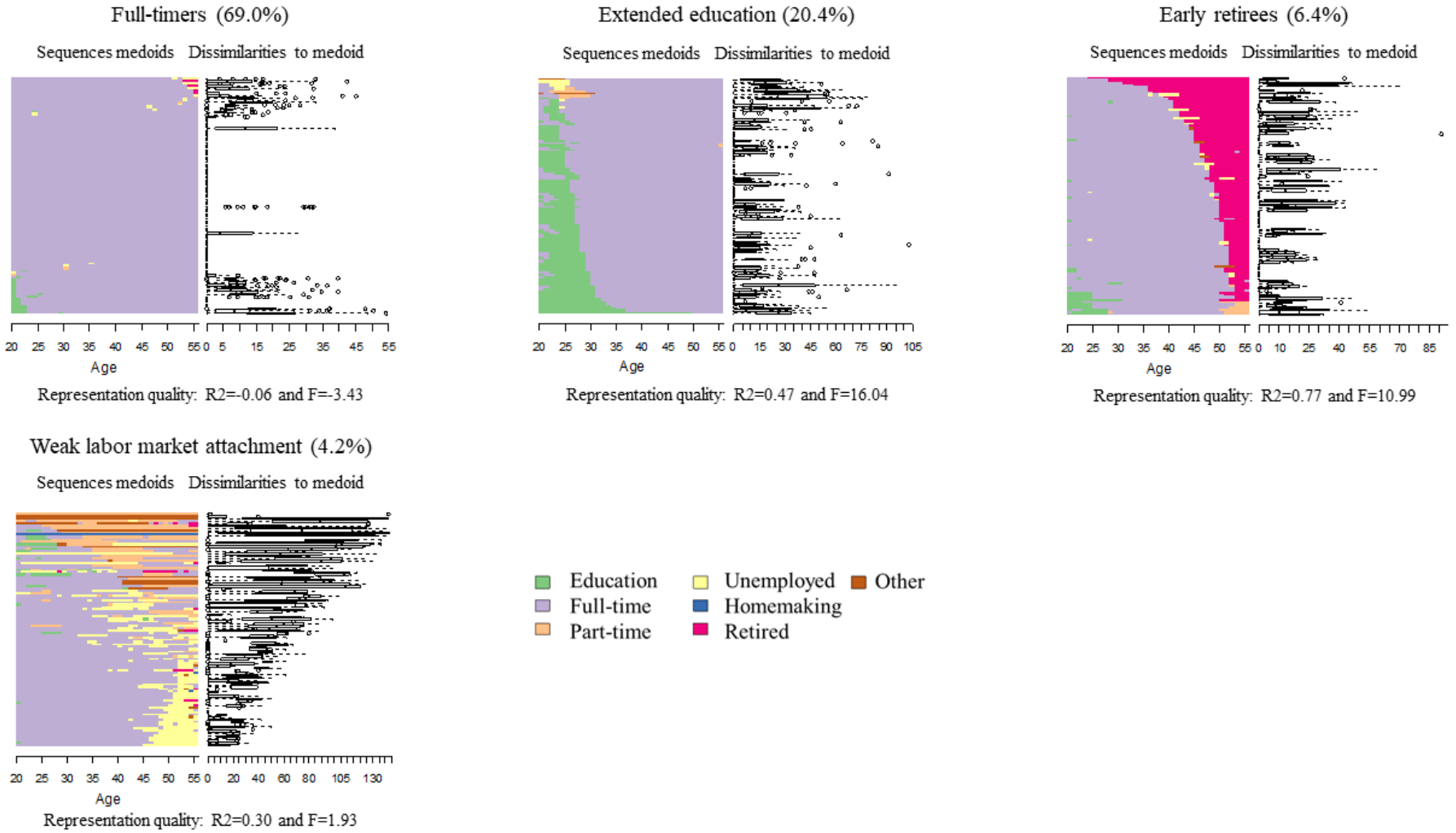

Men eastern Germany
Indicators
N clusters
2
4
6
8
10
2
1
0
−1
−2
PBC (−0.91 / 2.08)
HG (−1.05 / 2.05)
HGSD (−1.05 / 2.05)
ASW (−1.01 / 2.21)
ASWw (−1.01 / 2.21)
CH (−1.03 / 1.99)
R2 (−1.94 / 1.09)
CHsq (−1.12 / 2.23)
R2sq (−1.84 / 0.92)
HC (−2.1 / 1.14)


Women western Germany
Indicators
N clusters
2
4
6
8
10
1
0
−1
−2
PBC (−1.05 / 1.46)
HG (−2.19 / 1.04)
HGSD (−2.19 / 1.04)
ASW (−0.92 / 1.67)
ASWw (−0.92 / 1.68)
CH (−1.1 / 1.57)
R2 (−2.23 / 0.92)
CHsq (−1.1 / 1.71)
R2sq (−2.33 / 0.88)
HC (−1.27 / 1.41)



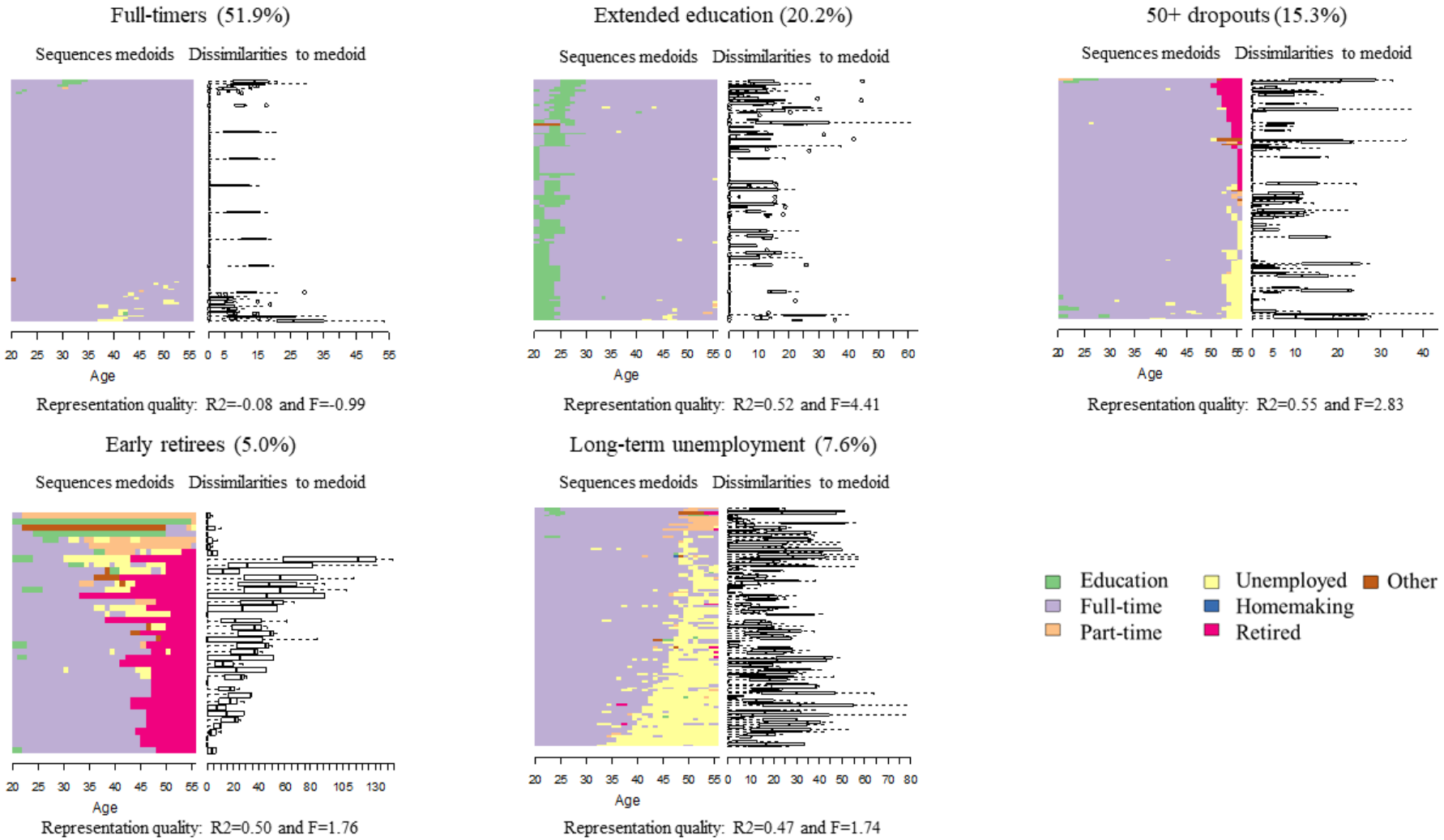
Source: SOEP (v34) 2002, 2007, 2012, 2017, authors' calculations.

Figure A2 Relative frequency sequence plots of men's employment trajectories in Western Germany



Note: The R2 and F statistics of the cluster "full-timers" do not represent the actual precision of the visually depicted set of sequences as the overall variance towards the general medoid is very small in this homogenous cluster, whereas the variance in the subsets of sequences is larger.

Figure A3 Relative frequency sequence plots of men's employment trajectories in Eastern Germany



Note: The R2 and F statistics of the cluster "full-timers" do not represent the actual precision of the visually depicted set of sequences as the overall variance towards the general medoid is very small in this homogenous cluster, whereas the variance in the subsets of sequences is larger.

Figure A4 Relative frequency sequence plots of women's employment trajectories in Western Germany

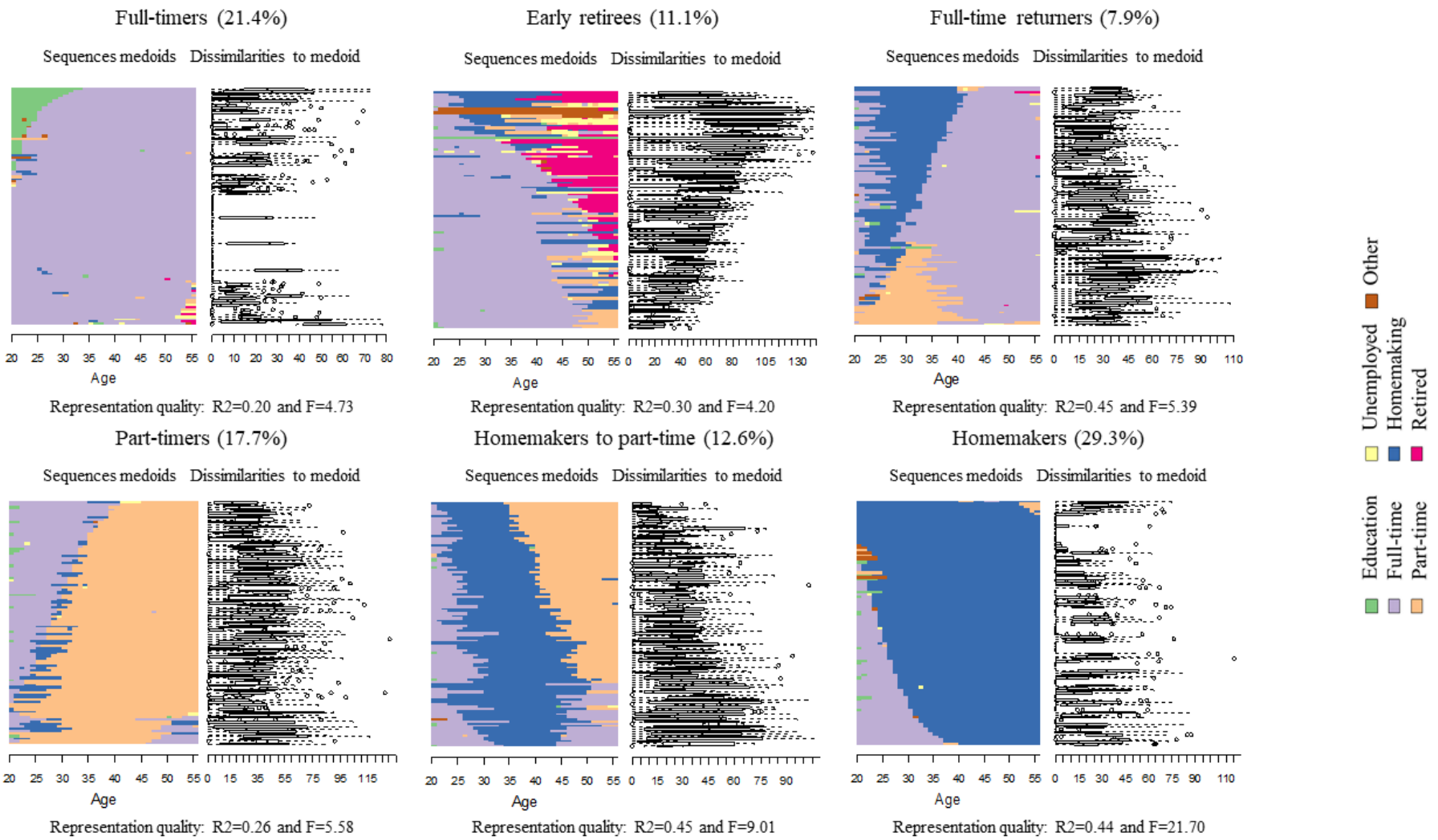
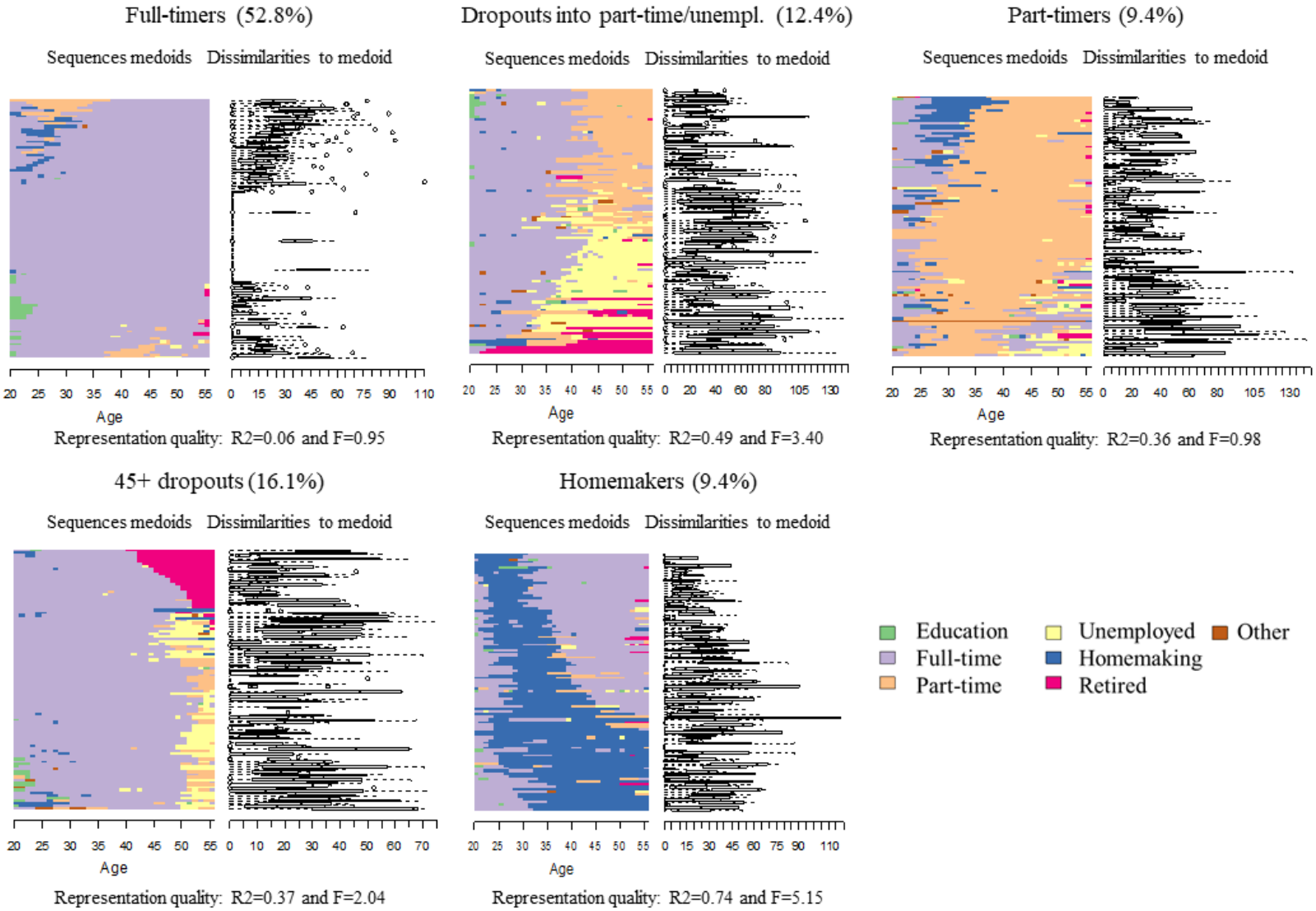


Figure A5 Relative frequency sequence plots of women's employment trajectories in Eastern Germany



Section A2 Further explanations on relative frequency sequence plots

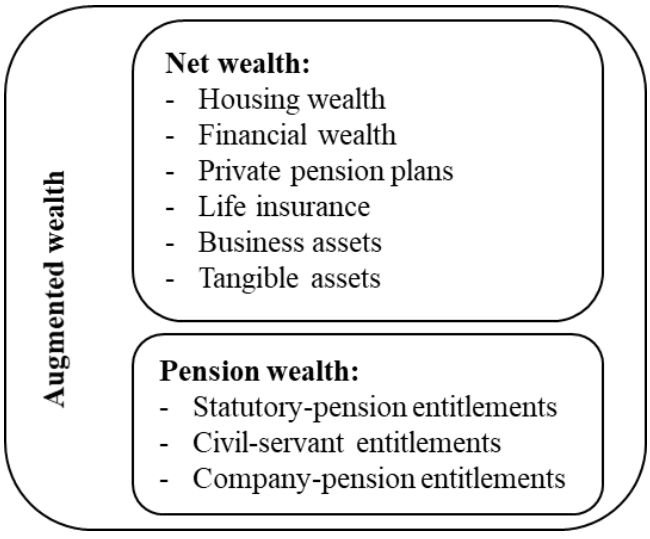
Relative frequency sequence plots are generated by (1) sorting the sequences using multidimensional scaling, (2) dividing the sorted sample into 100 subgroups, (3) choosing the medoid sequence from each subgroup, (4) plotting the medoid sequences, and (5) plotting dissimilarities from the medoid sequences as box-plots with R2 and F statistics to evaluate the goodness of fit (Fasang and Liao, 2014). The dissimilarities are calculated using DHD distance. A relatively high deviation to the medoid in the box-and-whisker plot indicates that the trajectories of other individuals in the respective group vary, e.g., due to slight differences in the timing or duration of spells. The plots were created with the *seqplot.rf* function of the TraMineR package using R (Gabadinho et al., 2011).

Online Appendix B: Supplementary Analyses

Section B1 Computation of augmented wealth and pension wealth

In addition to the measure of net wealth relying on the current value of real and financial assets plus private-pension plans (including Riester- and Rürup pensions), augmented wealth estimates pension wealth as the sum of future income streams at retirement (for a detailed explanation see Bönke et al., 2018). Pension wealth describes the sum of present values of statutory-pension, civil-servant, and company-pension entitlements.

The characteristics of pension wealth are different from those of net wealth. In contrast to other wealth, pensions are tied assets that are paid out as a lifelong monthly pension income, starting with retirement entry and ending with death. Hence, they underlie no standard property rights and can neither be liquified nor inherited to the spouses or children. Due to the comprehensive and reliable income stream, pension wealth serves as a substitute for other forms of private savings among retirees in Germany. In contrast to the market value of homeownership or the amount of savings on one's bank account, pension wealth is considered a hypothetical part of one's wealth portfolio that can neither be accessed nor spent. Its total sum depends on the number of months paid or, in other words, on the lifetime of the recipient. Therefore, pension wealth cannot be surveyed but has to be estimated on the basis of the parameters monthly entitlements, average survival probabilities, and real interest rates.



Source: Own diagram, based on Bönke et al. 2018.

We compute the present value of pension wealth PV based on gross entitlements from the first and second pension pillars p (statutory, civil, and company; following Bönke et al., 2018: 16-17). The statutory pension insurance is mandatory for employees and also includes survivor and disability benefits. The level of pension entitlements is calculated based on the income level and the length of the contribution period. Pension benefits for civil servants also include survivors' benefits and accident insurance and is mandatory for civil servants. Company-pension entitlements are additional voluntary pension schemes offered by employers.

$$PV_p = \sum_{t=0}^{T-a} s_{a,t} \text{ x } \frac{1}{(1+i)^t} \text{ x } pension_t^p$$

The value of expected aggregated pensions PV_p is the sum of the current pension entitlement in year 2002, 2007, 2012, and 2017 $pension_t^p$ adjusted for the real interest rate i (discount rate of 3%) and average survival probabilities $s_{a,t}$ differentiated by gender in the respective year. The survival probabilities are calculated on the basis of general mortality tables provided by the German Federal Statistical Office in 2002, 2007, 2012, and 2017.[18]

[18] See https://www-genesis.destatis.de/genesis/online/link/tabellen/12621* (accessed on 17 May 2019).

Section B2 Multiple imputation procedure of wealth information and other analytical variables

We use wealth information that has been multiply imputed by the SOEP survey team (Grabka and Westermeier, 2015). Wealth is considered a sensitive information that is usually collected with high non-response rates. To account for item non-response, the SOEP team applies multiple imputation to avoid biased measures through measurement error. For our analyses, we use these edited and multiple imputed wealth measures to address item non-response on respondents' wealth information (around 12 per cent missing data in housing wealth and 28 per cent missing data in non-housing wealth). The exclusion of missing values (*listwise deletion*) would substantially reduce the sample sizes for these analyses and therefore results in less stable coefficient estimates.

Due to the use of longitudinal data from the repeated wealth surveys in 2002, 2007, and 2012, and 2017, the quality of the imputation can be improved considerable in contrast to a single imputation approach. The SOEP team ensures the quality of the imputed data through a variety of internal checks and comparisons to external data from wealth survey conducted by the German Federal Bank and Statistical Federal Office (Grabka and Westermeier, 2015). Further, the multiple imputation approach accounts for the uncertainty of the imputation compared to single imputation by generating a data set with five repeated sets of imputations. Based on these imputations, we added a set of 25 imputations (in total M=30) to attenuate the impact of potential 'odd' imputations that may produce misleading parameter estimates, which is reflected in highly conservative regression estimates.

For the remaining analytical variables, we imputed missing values with multiple imputation using Stata's *mi* procedure (version 15) under the assumption of missing at random. We imputed missing values separately by gender and context for the analytical variables, i.e., we conducted imputation models separately for each subgroup. Partners' employment clusters are only considered in the supplementary analyses with additional partner controls, therefore they exclusively apply to women's imputation models.

Table B1 provides an overview of all analytical and auxiliary variables used in the regression and imputation models. Variables without missing values that were included in all imputation models

are gender, age, birth cohort (1903-1929, 1930-1939, 1940-1949, and 1950-1961), location in 1989 (East/West Germany), and individuals' employment clusters. Further, we included several auxiliary variables in the imputation models to enhance the quality of our imputations (divorced and widowed indicators; overall length, number of disruptions and timing of first unemployment, part-time employment and homemaking spell).

Table B1 Overview of variables used for the imputation process including number and share of missing values

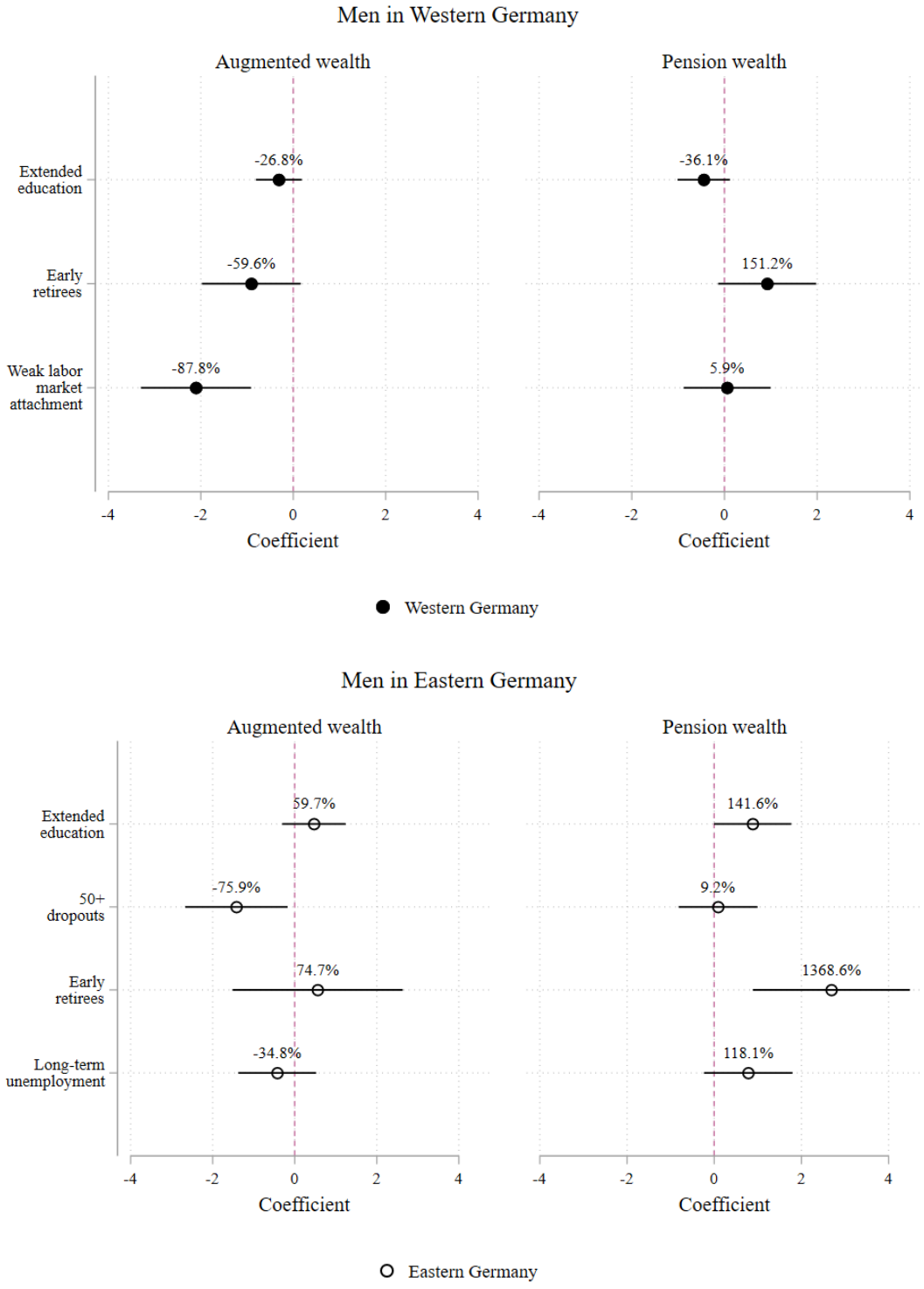
		Number of missing values	Number of valid observations	Percentage
Basic demographics	Gender	0	10835	0.00
	Age	0	10835	0.00
	Cohort	0	10835	0.00
	East/West Germany	0	10835	0.00
	Number of children	1	10834	0.01
	School education	188	10647	0.02
	Years in retirement	346	10489	0.03
	Ever divorced	0	10835	0.00
	Ever widowed	0	10835	0.00
Employment clusters	Men West	0	3756	0.00
	Men East	0	1403	0.00
	Women West	0	4008	0.00
	Women East	0	1668	0.00
Family of origin	Number of siblings	461	10374	0.04
	Father's highest education	941	9894	0.09
	Mother's highest education	781	10054	0.07
	Father's birth cohort	738	10097	0.07
	Mother's birth cohort	566	10269	0.05
Childhood	Still at location of childhood	187	10648	0.02
	Region type	1	10834	0.01
Wealth measures	Housing wealth	1253	9582	11.56
	Non-housing wealth	3084	7751	28.46
	Public pension wealth	1891	8944	17.44
	Inheritances	1651	9184	15.24
Partnership characteristics	Partner's employment cluster	740	4936	13.04
	Length of current marriage	653	10182	6.03
Auxiliary variables in imputation models	Length in unemployment	0	10835	0.00
	Number of unemployment disruptions	0	10835	0.00
	Timing of first unemployment	0	10835	0.00
	Length in part-time employment	0	10835	0.00
	Number of part-time employment disruptions	0	10835	0.00

Table B1, continued

		Number of missing values	Number of valid observations	Percentage
Auxiliary variables in imputation models	Timing of first part-time employment	0	10835	0.00
	Length in homemaking	0	10835	0.00
	Number of homemaking disruptions	0	10835	0.00
	Timing of first homemaking	0	10835	0.00

Note: Partners' employment clusters are only considered in the supplementary analyses with additional partner controls, therefore they exclusively apply to women's imputation models.

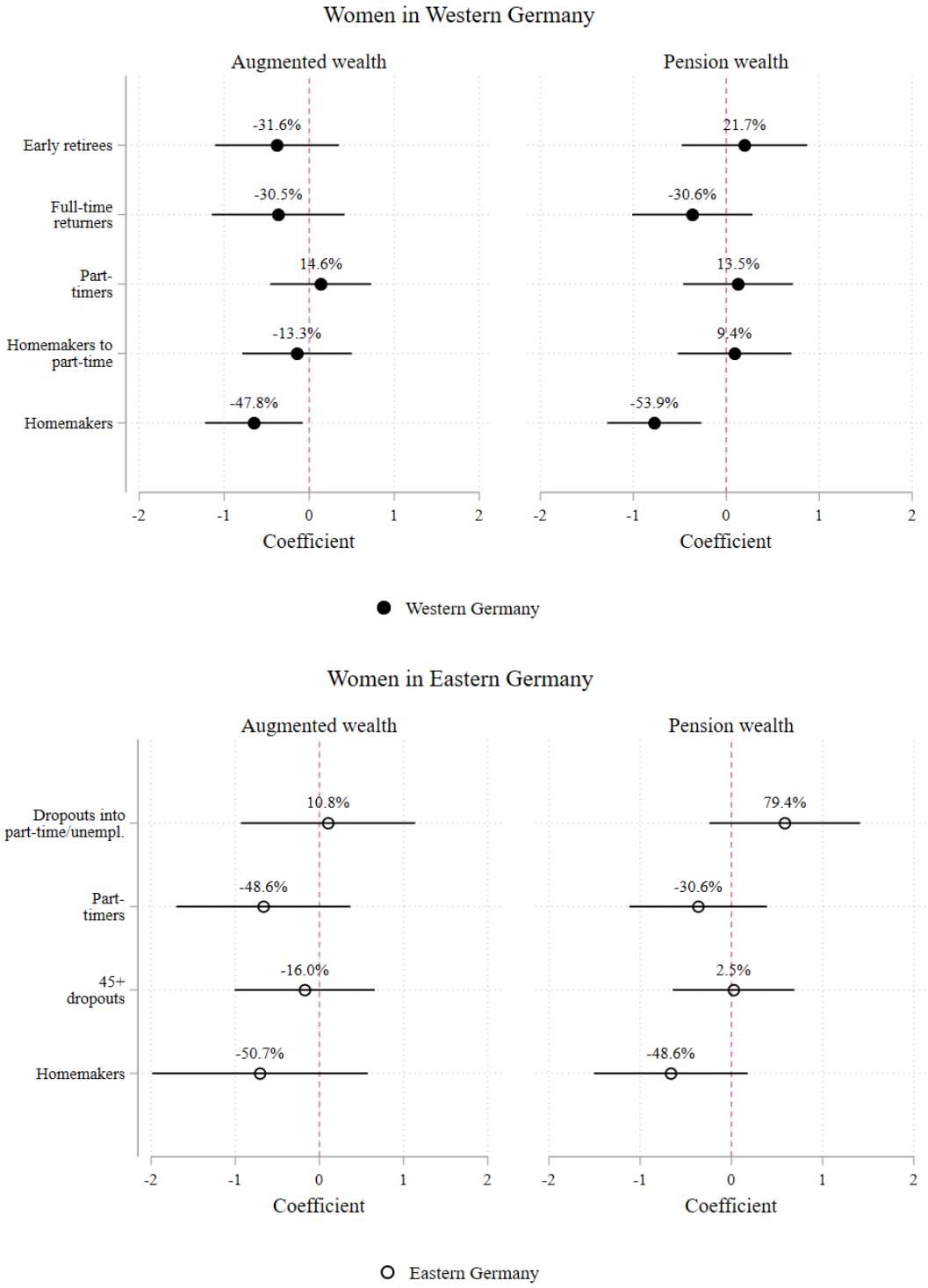
Figure B1 Multivariable OLS regression models of employment clusters on individual augmented wealth and pension wealth for men in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).

Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

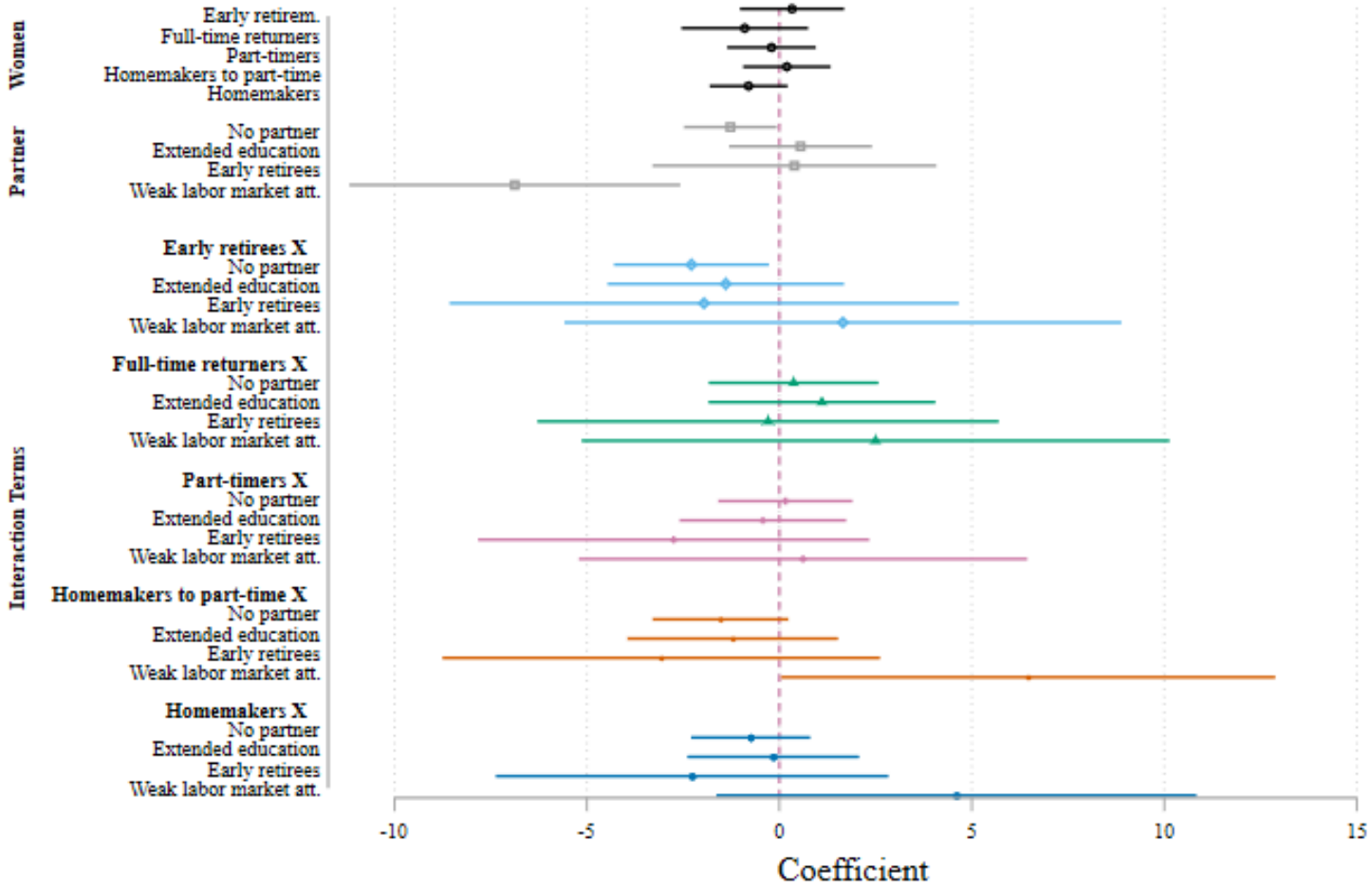
Figure B2 Multivariable OLS regression models of employment clusters on individual *augmented wealth* and *pension wealth* for women in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).

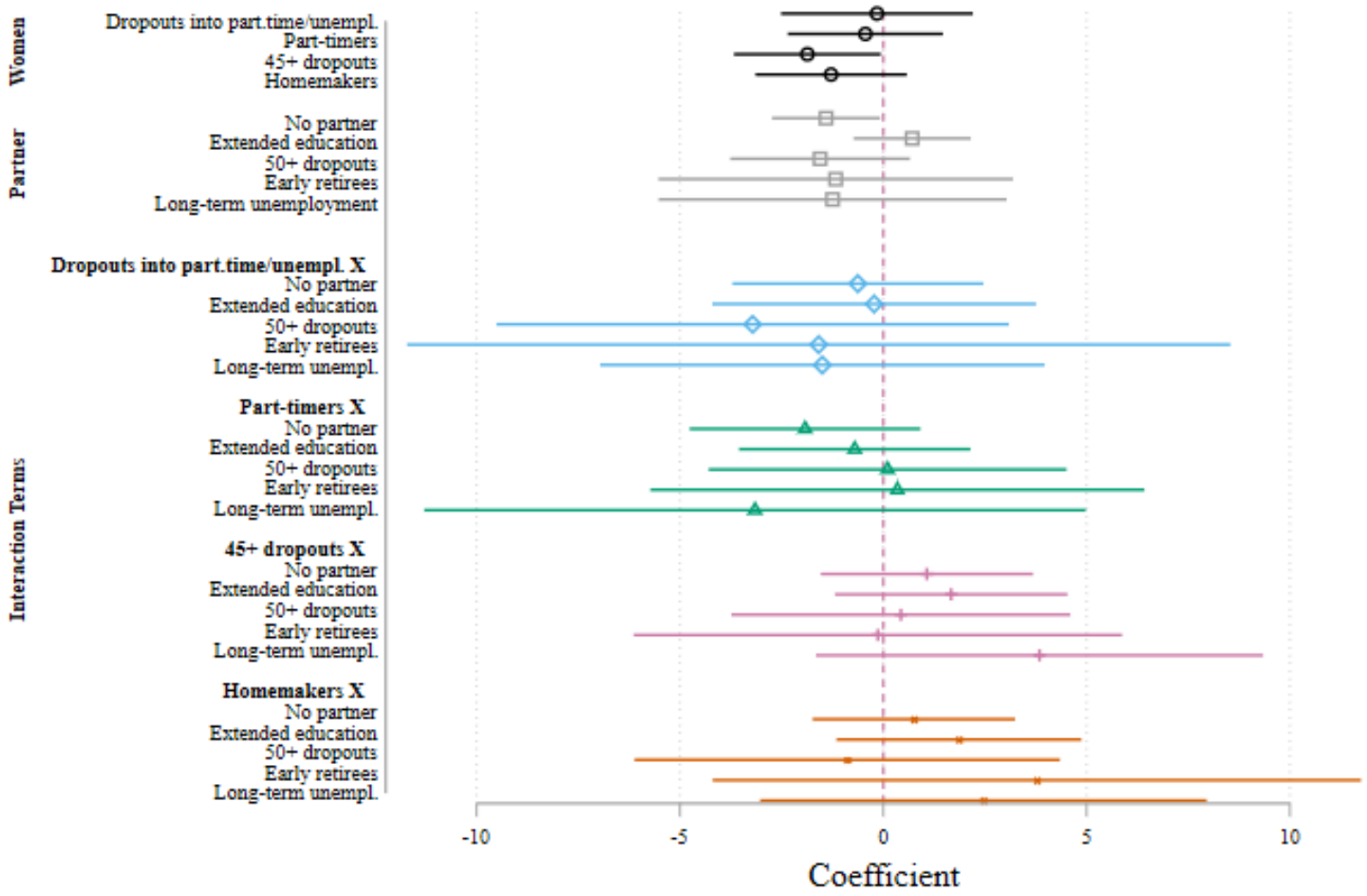
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B3 Multivariable OLS regression models of women's employment clusters on IHS-transformed individual net wealth controlling for partners' employment in Western Germany



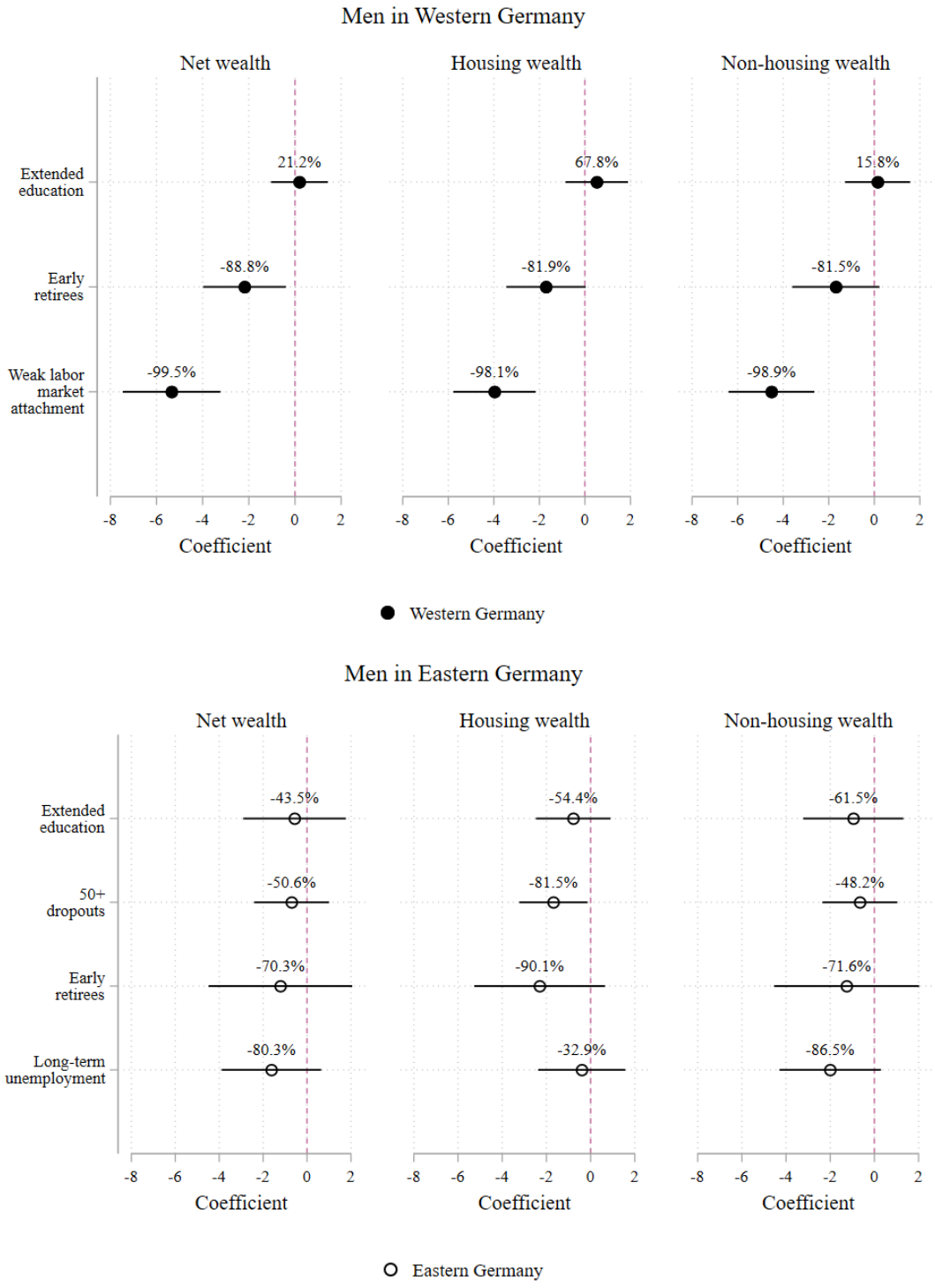
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B4 Multivariable OLS regression models of women's employment clusters on IHS-transformed individual net wealth controlling for partners' employment in Eastern Germany



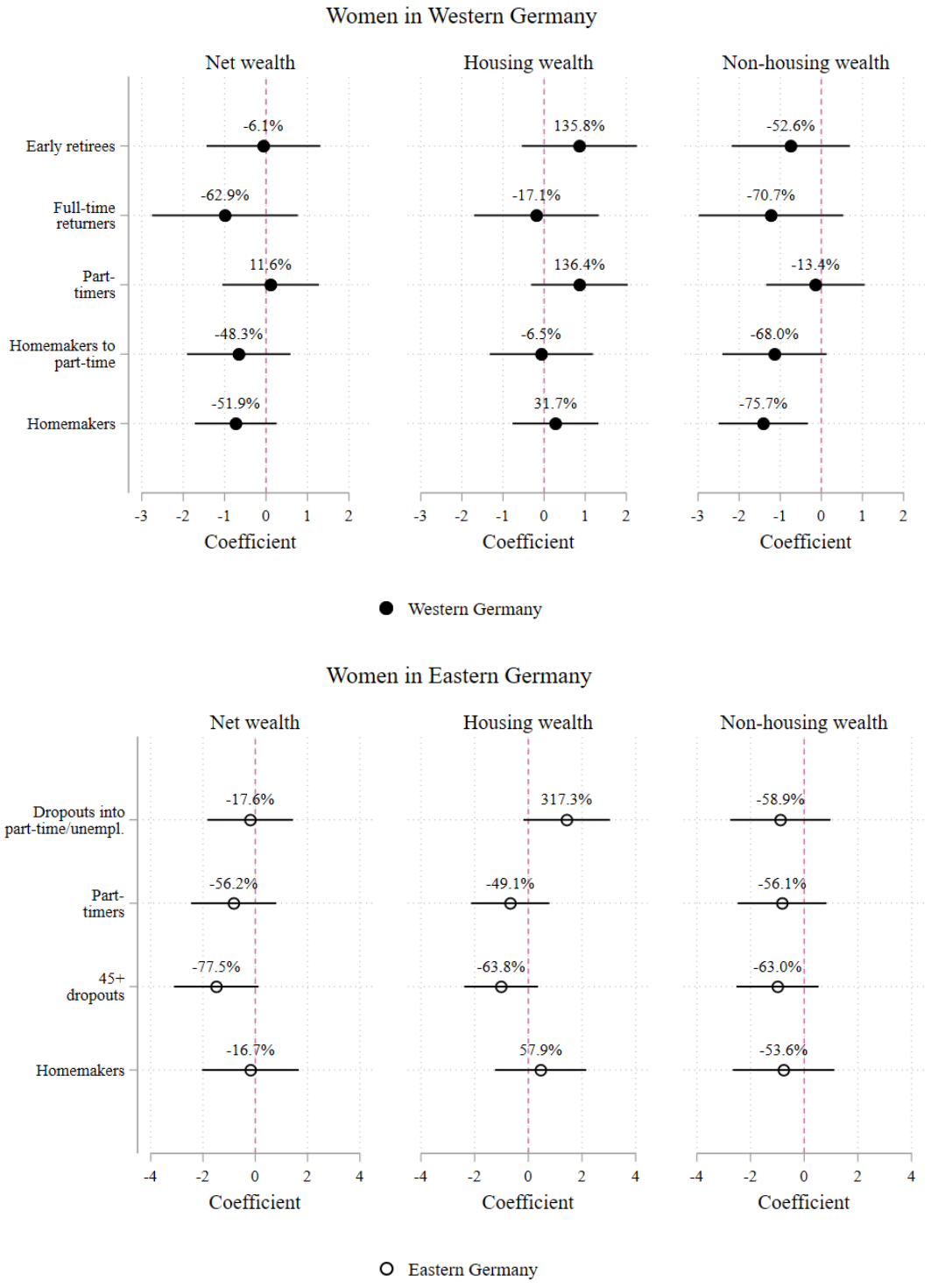
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B5 OLS regression models of men's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany if they still live at the location of their childhood



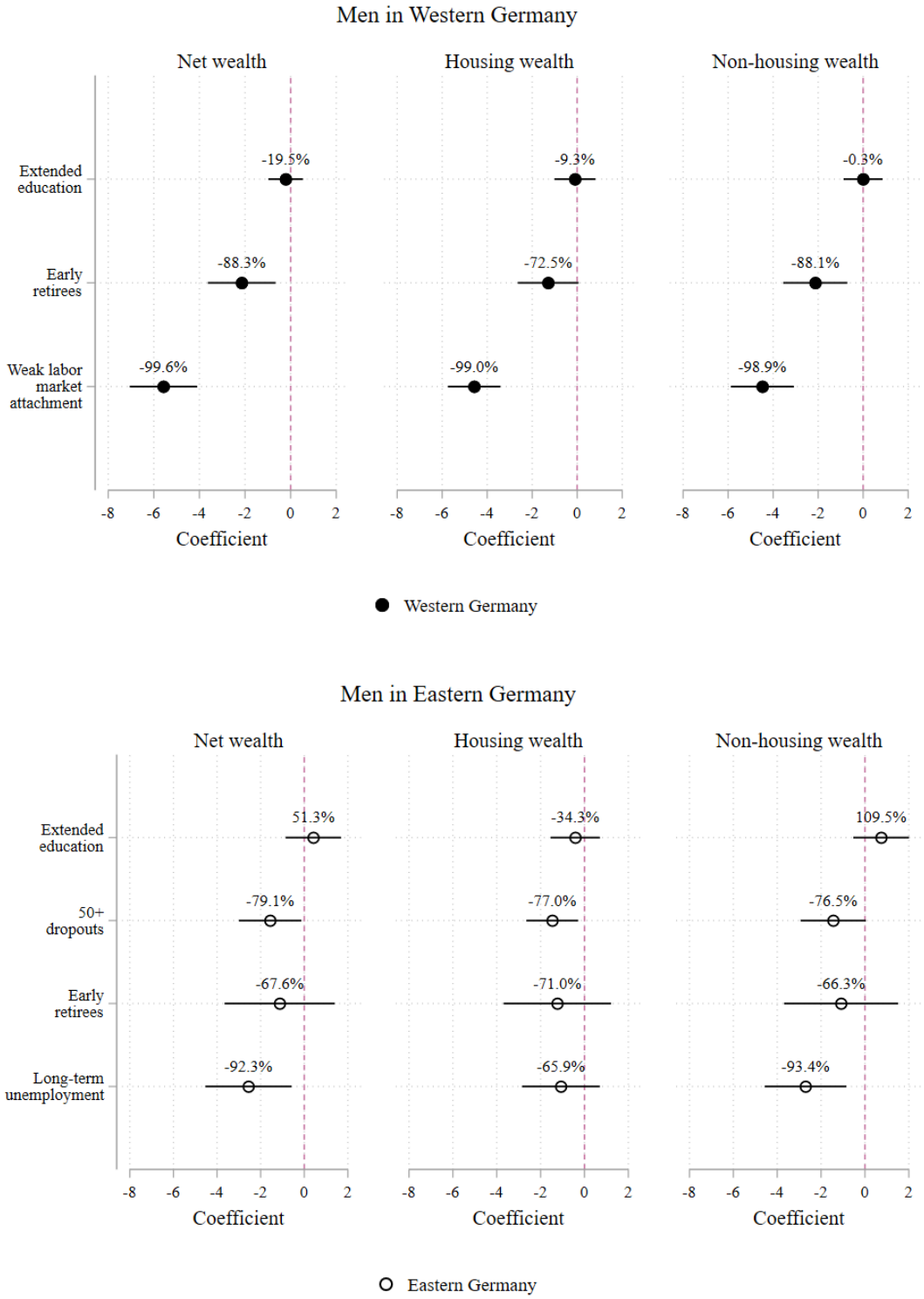
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B6 OLS regression models of women's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany if they still live at the location of their childhood



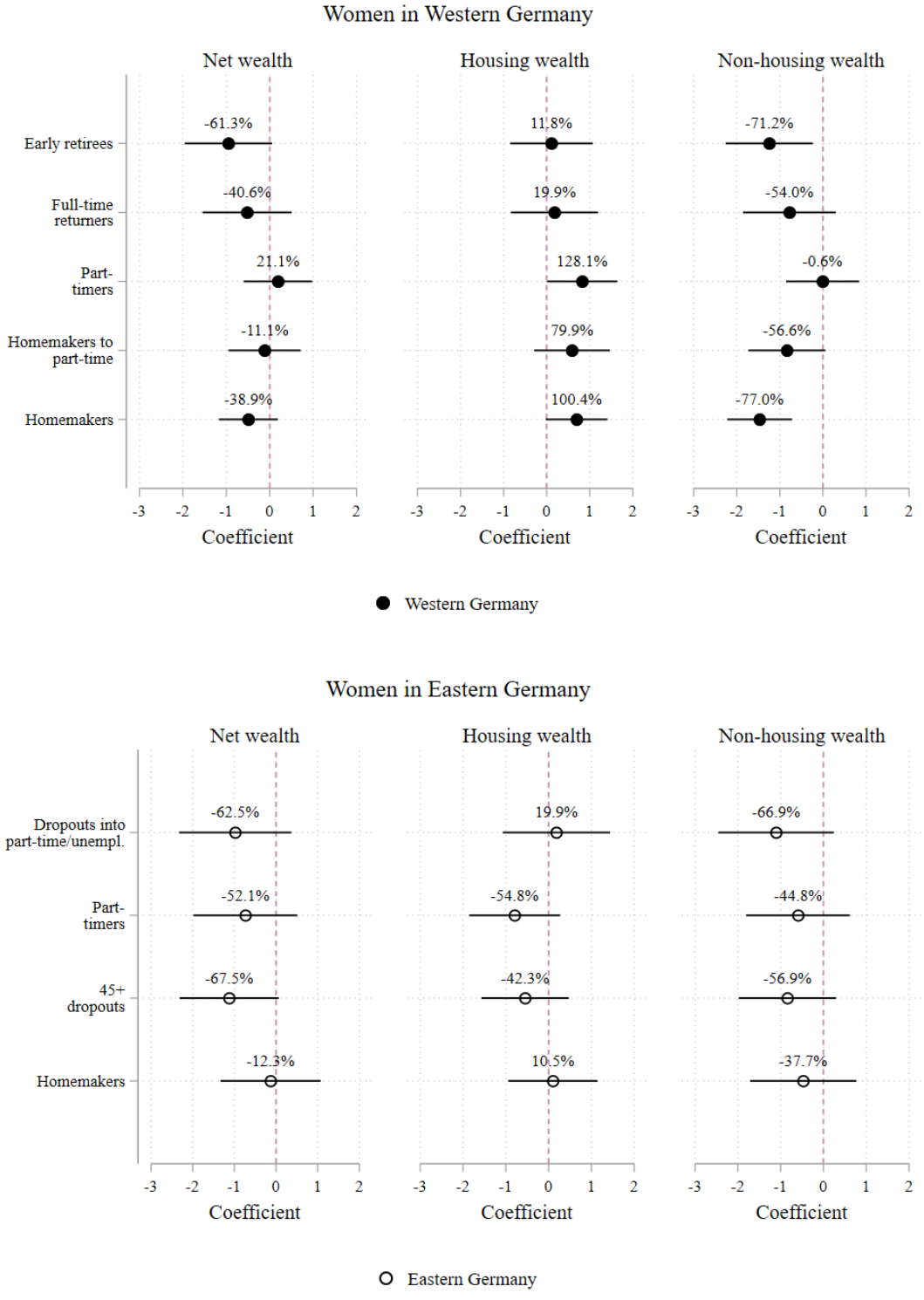
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B7 OLS regression models of men's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany not controlling for inheritances



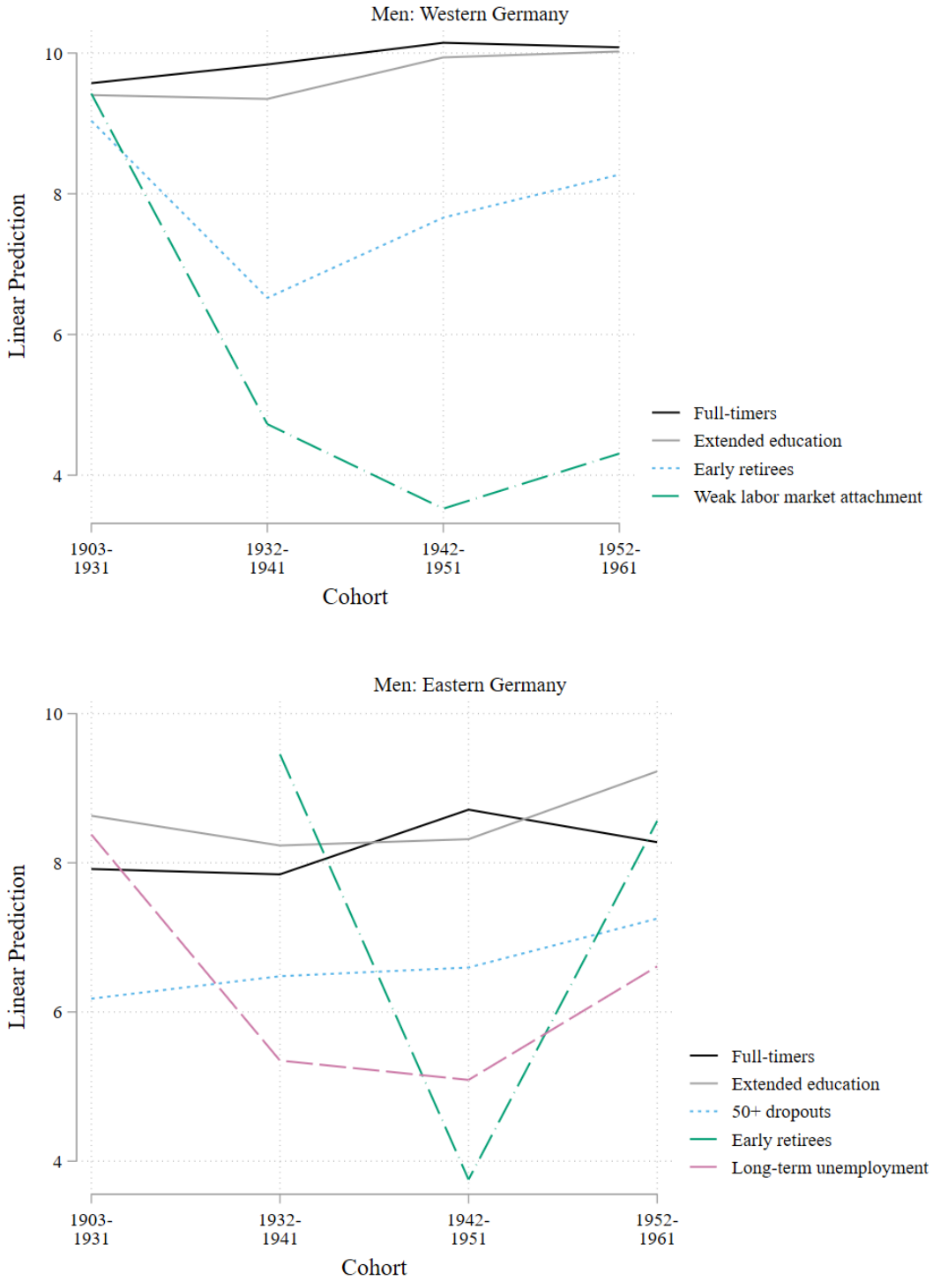
Note: OLS regression models; robust standard errors; models also control for education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B8 OLS regression models of women's employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany not controlling for inheritances



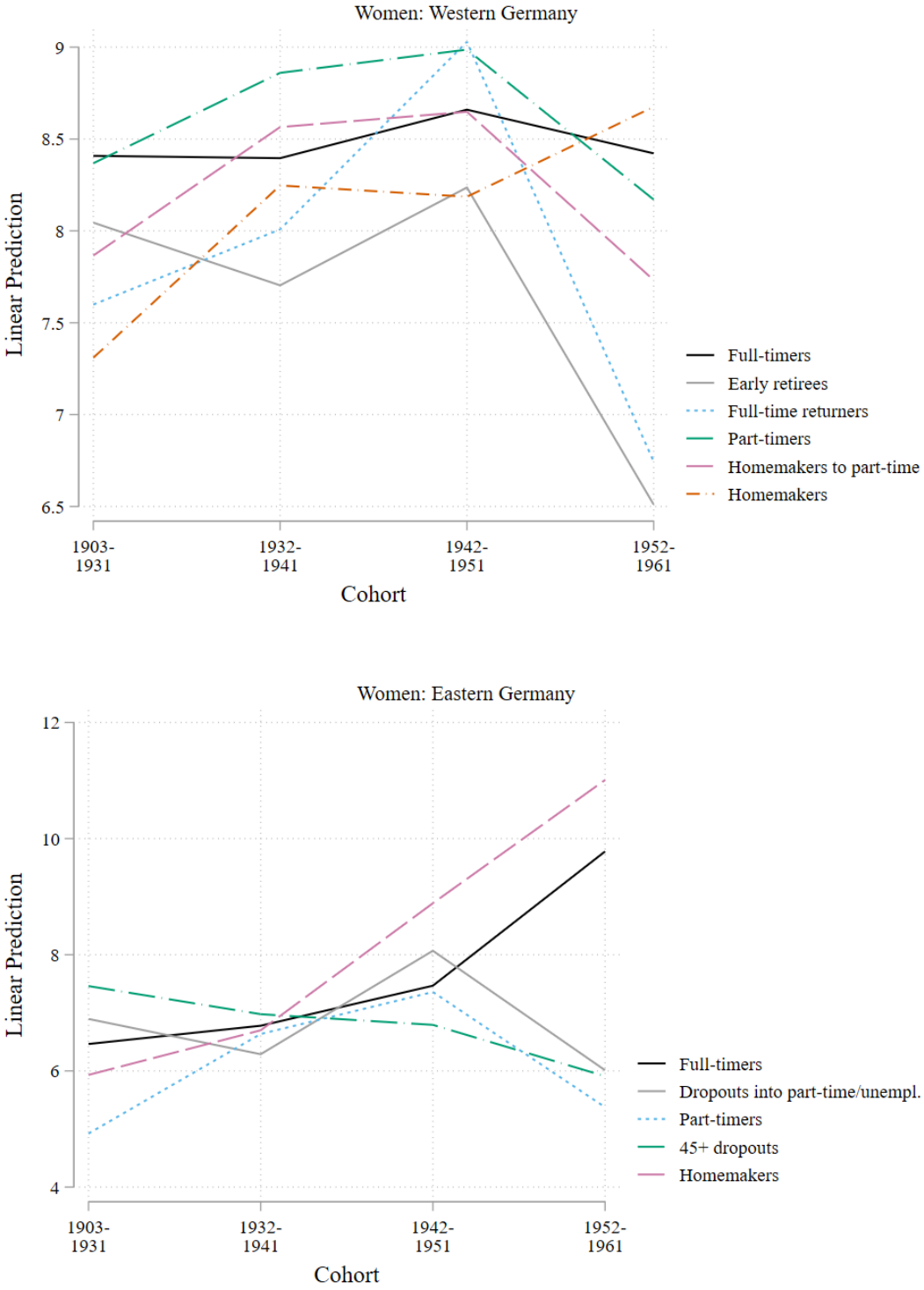
Note: OLS regression models; robust standard errors; models also control for education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(b) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B9 Predictive margins of men's employment clusters X birth cohort on inverse hyperbolic sine (IHS) transformed individual net wealth at older ages in Western and Eastern Germany



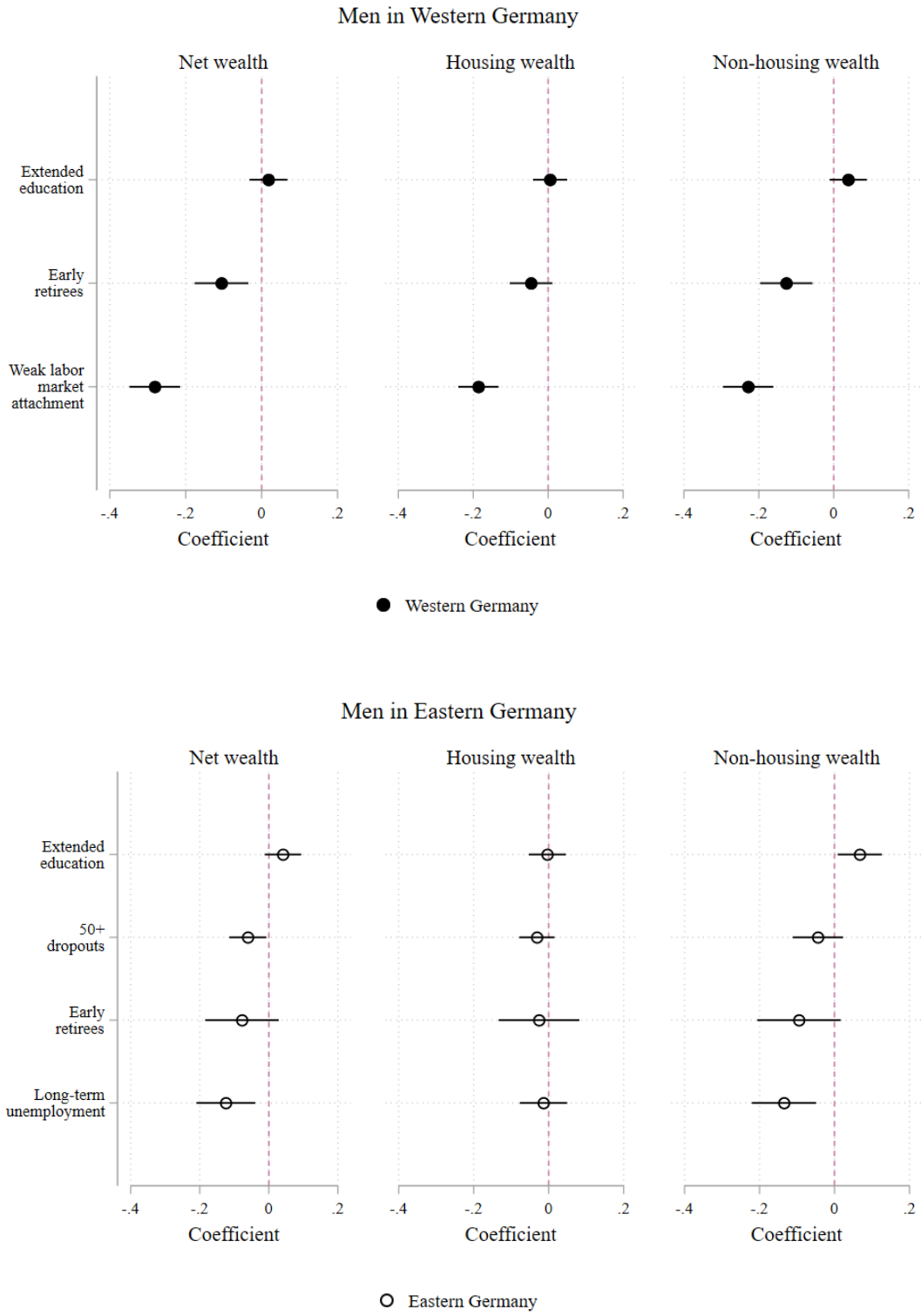
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, number of siblings, region during childhood.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B10 Predictive margins of women's employment clusters X birth cohort on inverse hyperbolic sine (IHS) transformed individual net wealth at older ages in Western and Eastern Germany



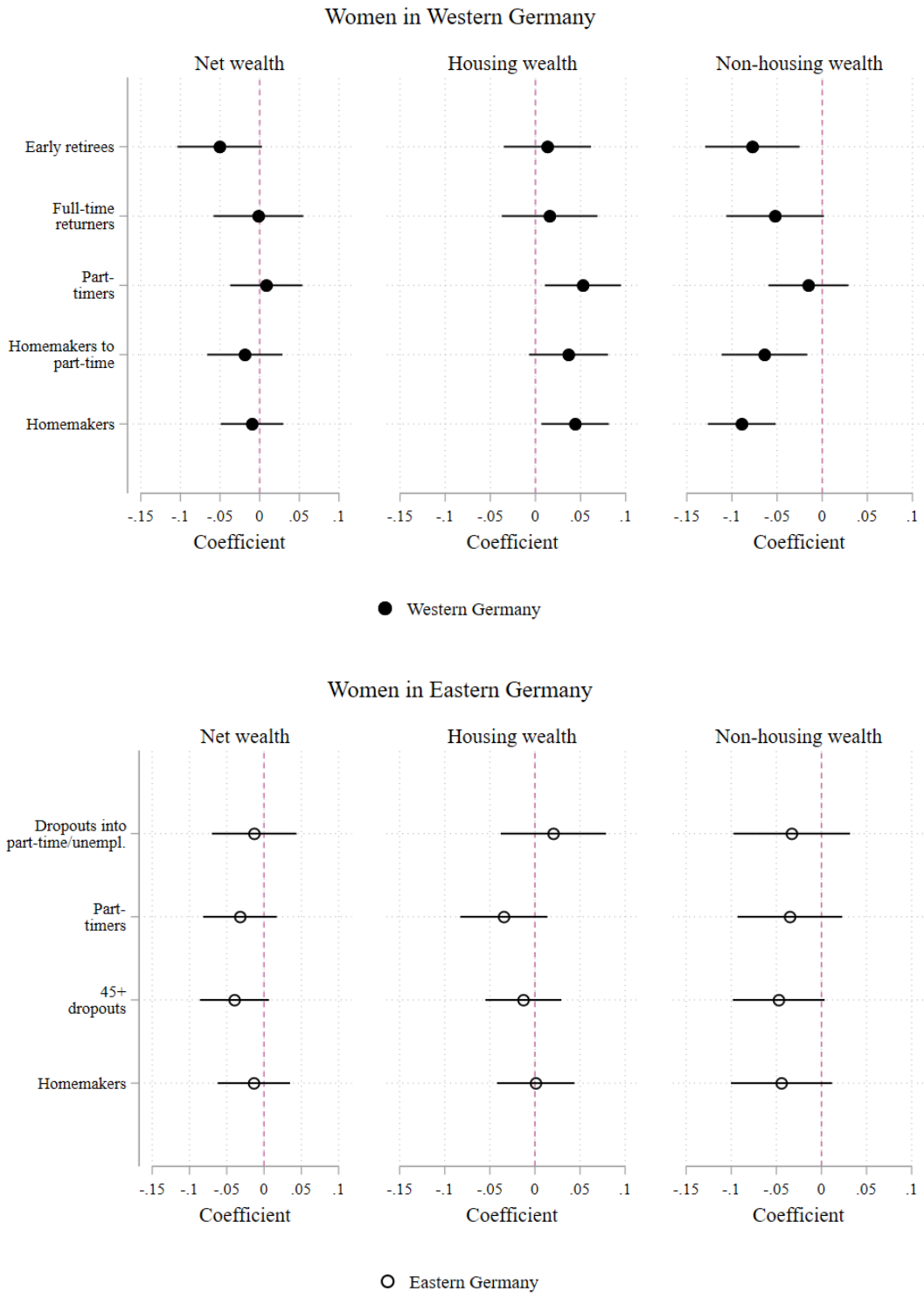
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, number of siblings, region during childhood.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B11 OLS regression models of men's employment clusters on *rank-transformed* individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B12 OLS regression models of women's employment clusters on *rank-transformed* individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B13 Clusters generated with fuzzy clustering where sequences belong to each cluster with an estimated membership strength

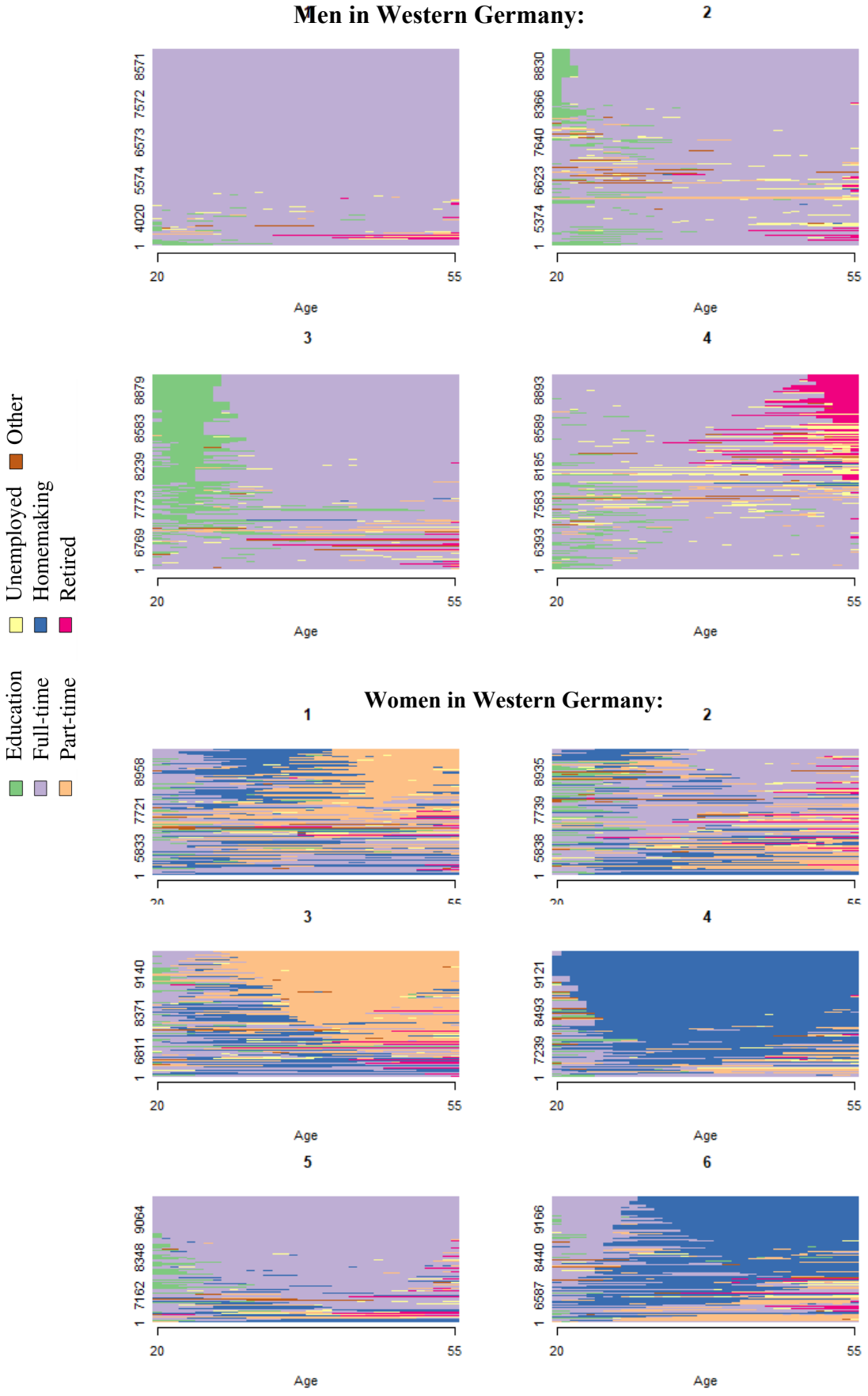


Figure B13, continued

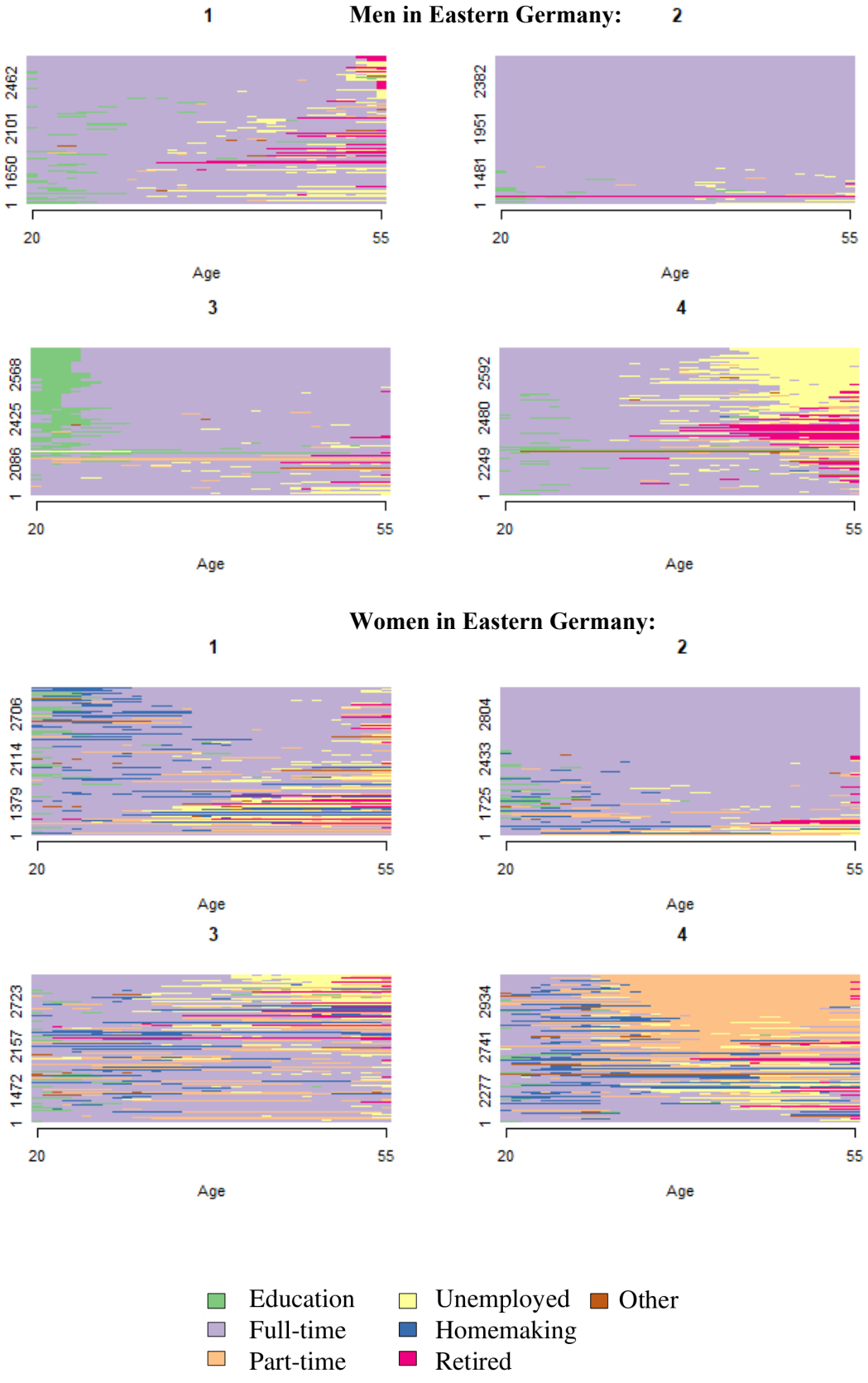
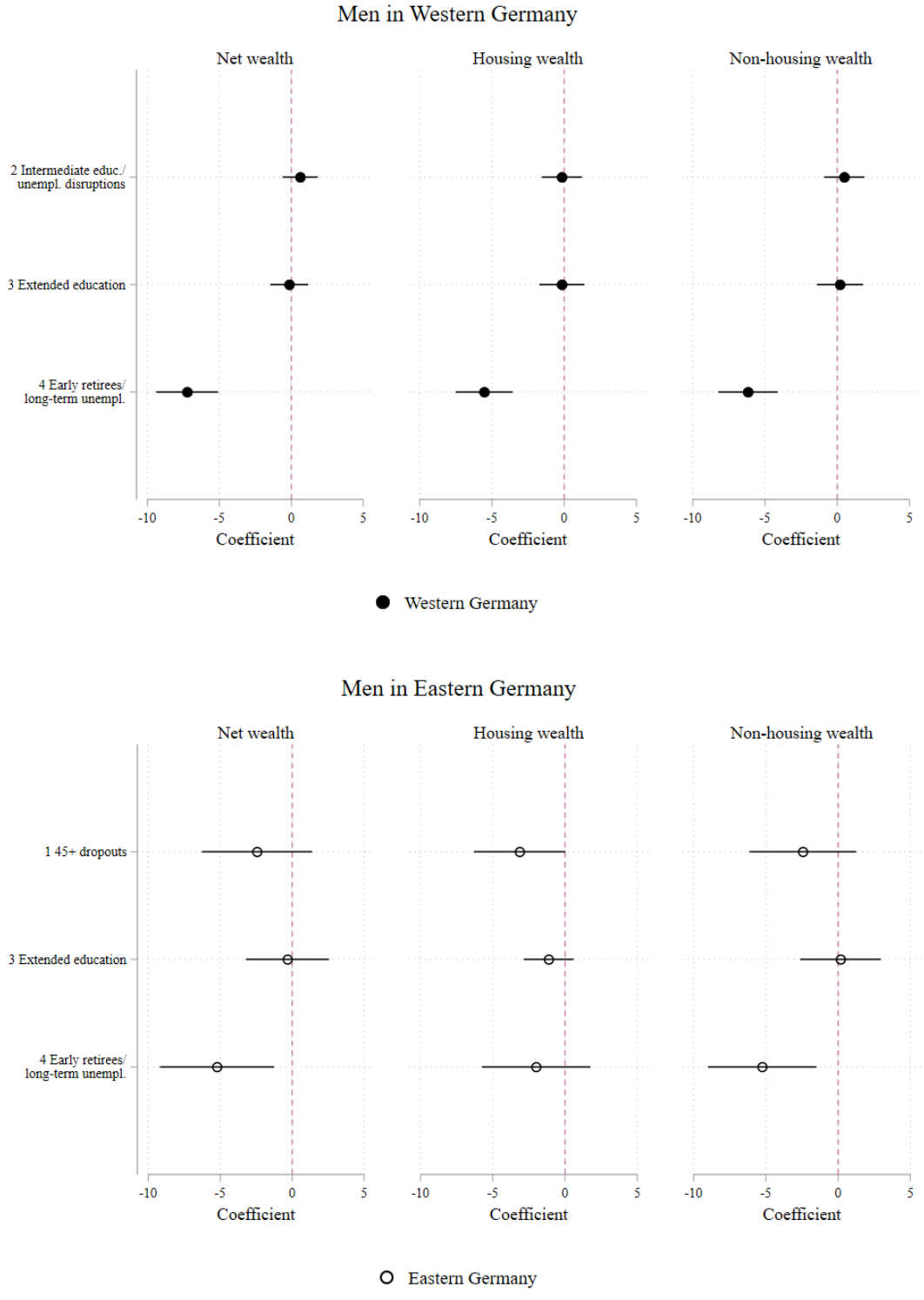
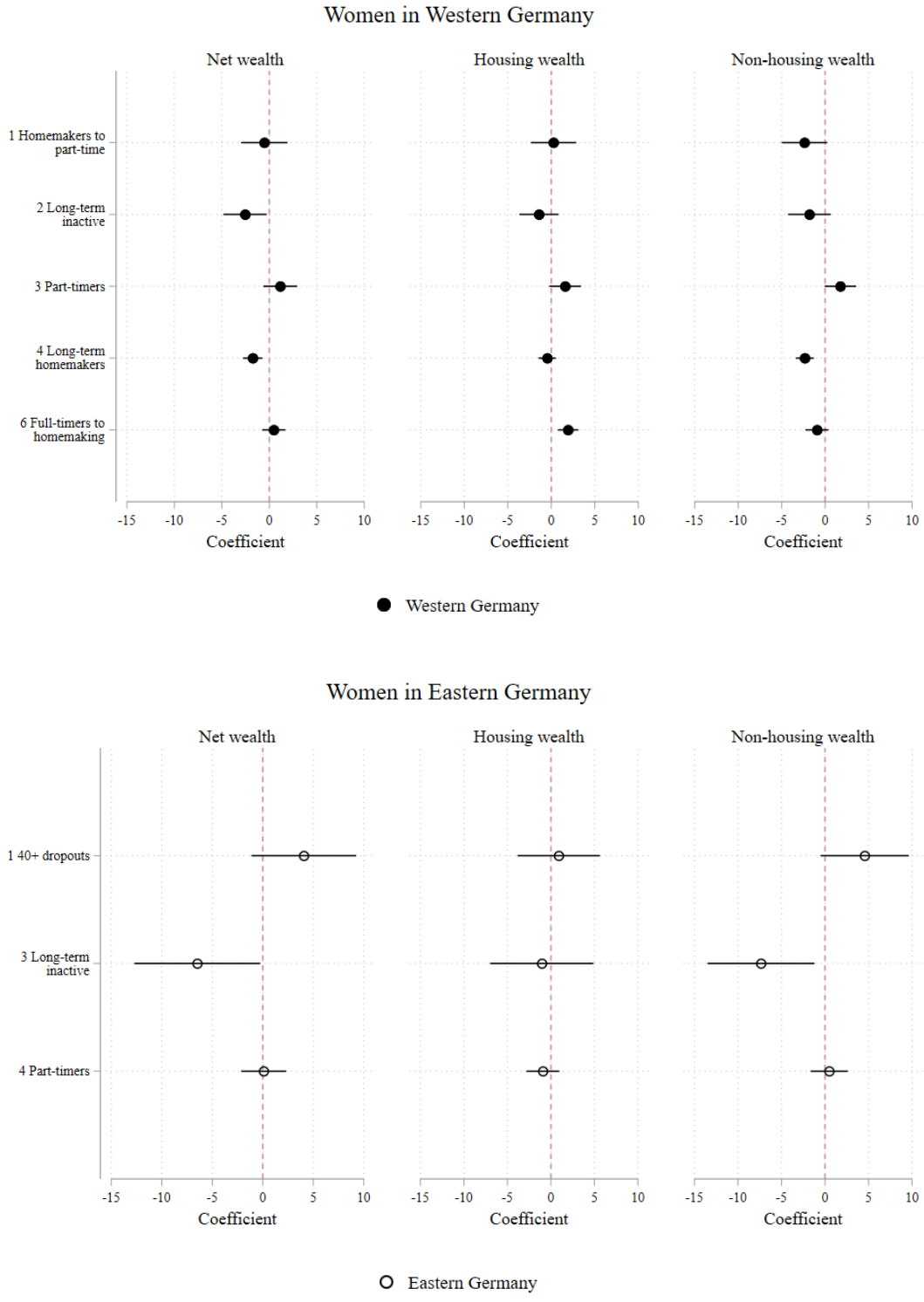


Figure B14 OLS regression models of men's fuzzy employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



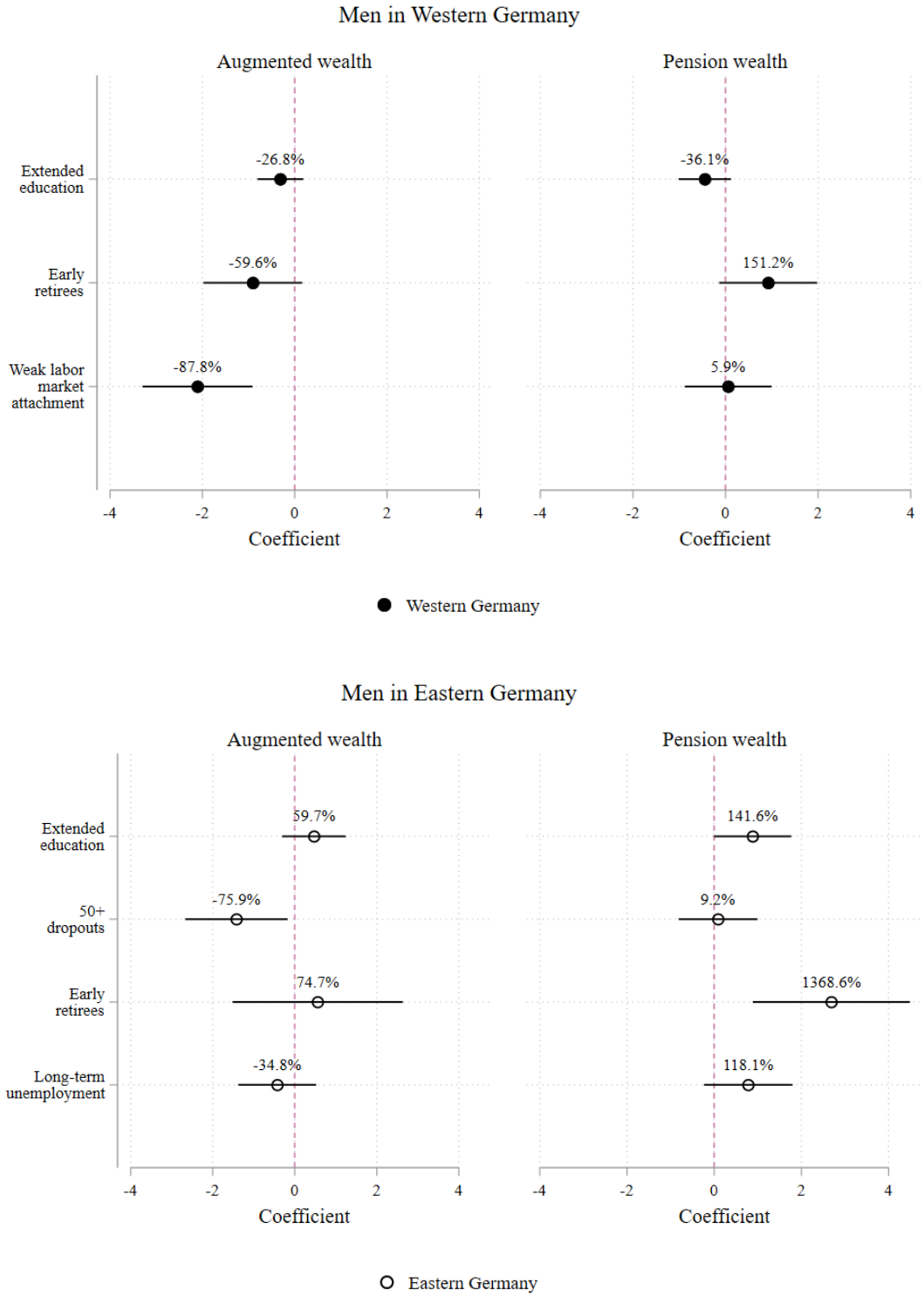
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B15 OLS regression models of women's fuzzy employment clusters on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



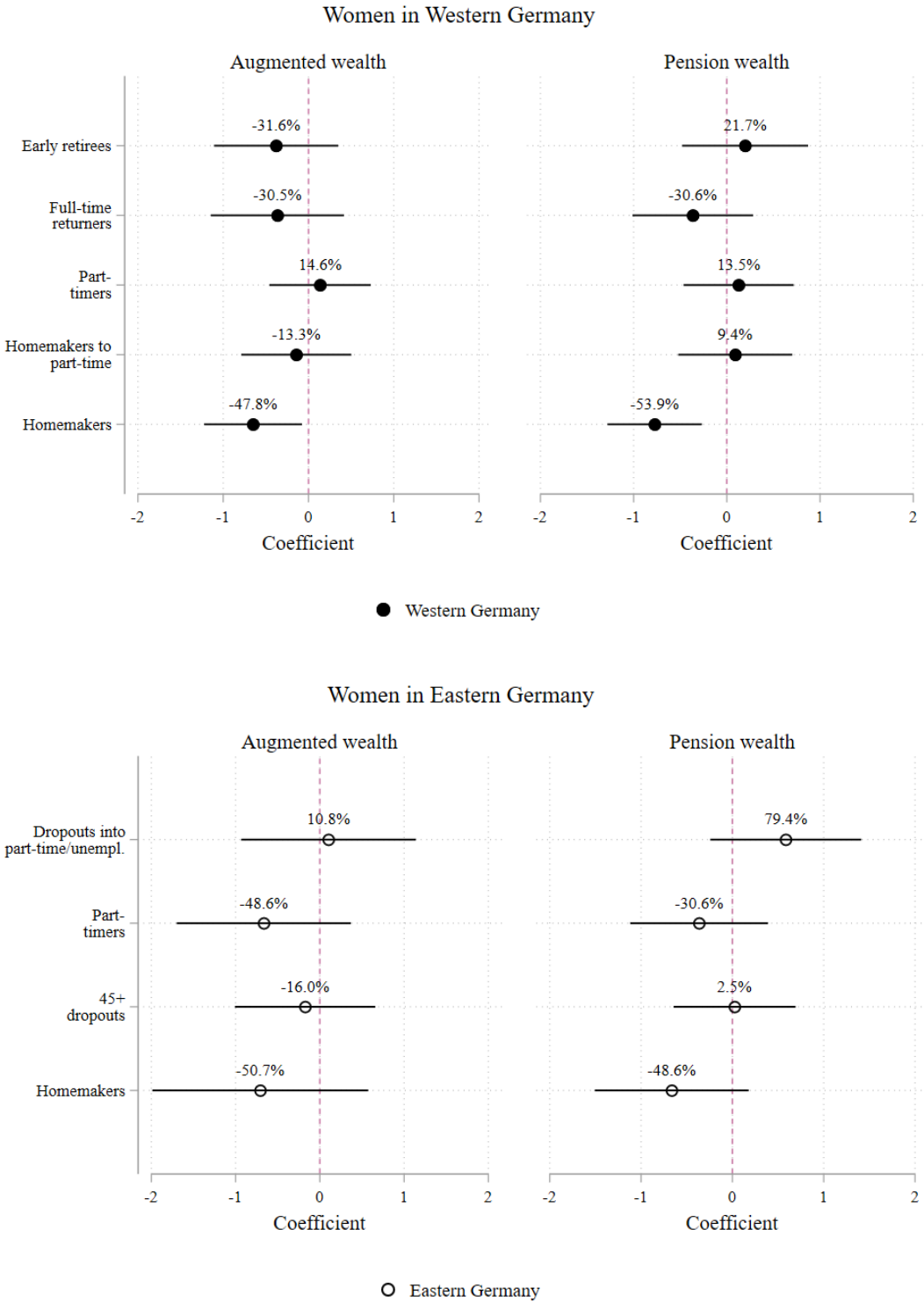
Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval.
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B16 OLS regression models of men's employment clusters (based on employment trajectories from age 20 to 65) on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

Figure B17 OLS regression models of women's employment clusters (based on employment trajectories from age 20 to 65) on inverse hyperbolic sine (IHS) transformed individual wealth at older ages (net, housing, non-housing) in Western and Eastern Germany



Note: OLS regression models; robust standard errors; models also control for individual inheritances, education, parents' education, parents' birth cohorts, age, age squared, years since retirement, birth cohort, number of siblings, region during childhood. Whiskers indicate 95 percent confidence interval. Percentages indicate retransformed coefficients (= 100 × [exp(*b*) – 1]).
Source: SOEP (v34) 2002, 2007, 2012, 2017 (weighted, multiply imputed).

References

Bönke, T., Grabka, M. M., Schröder, C., Wolff, E. N. and Zyska, L. (2018). The joint distribution of net worth and pension wealth in Germany, *Review of Income and Wealth*, 0, 1-38.

Fasang, A. E. and Liao, T. F. (2014). Visualizing sequences in the social sciences: Relative frequency plots, *Sociological Methods & Research*, 43, 643–676.

Gabadinho, A., Ritschard, G., Müller, N. S. and Studer, M. (2011). Analyzing and visualizing state sequences in R with TraMineR, *Journal of Statistical Software*, 40, 1–37.

Grabka, M. M. and Westermeier, C. (2015). Editing and multiple imputation of item non-response in the wealth module of the German Socio-Economic Panel, *SOEP Survey Papers* 272, DIW, Berlin.

APPENDIX CHAPTER 3

Table A1 Overview of variables used for imputation model with number and share of missing values

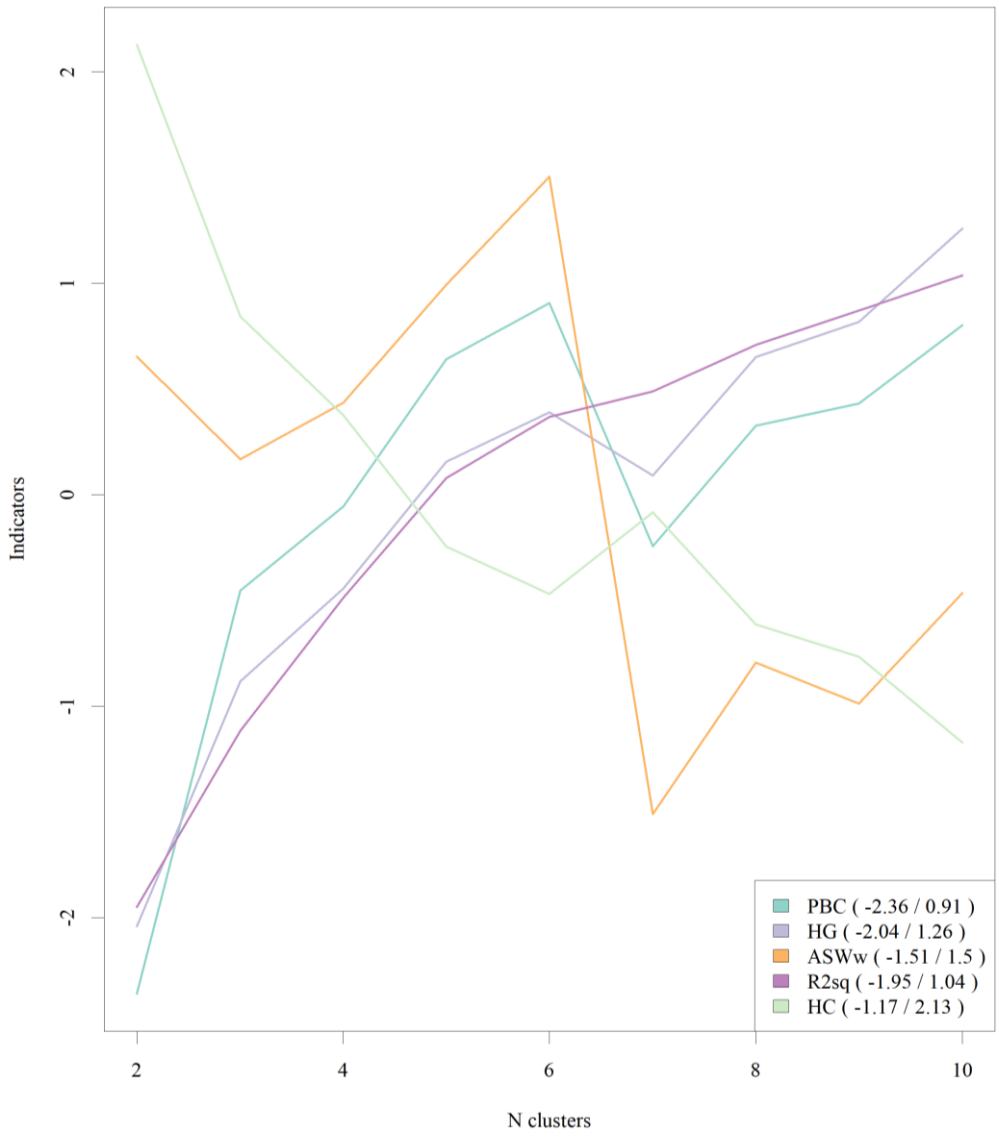
	Number	Percentage
Employment-marriage cluster	176	5.15
Woman's number of children	0	0.00
Woman's age	0	0.00
Woman's age-squared	0	0.00
Age difference	0	0.00
Year of current marriage	70	2.05
Woman's age at first marriage	172	5.04
Woman's inheritances (IHS-transformed)	955	27.96
Woman's number of siblings	228	6.68
Woman's region during childhood	84	2.46
Woman's educational level	16	0.47
Woman's father educational level	508	14.88
Woman's mother educational level	460	13.47
Man's age at first marriage	165	4.83
Man's inheritances (IHS-transformed)	917	26.85
Man's number of siblings	227	6.65
Man's region during childhood	87	2.55
Man's educational level	9	0.26
Man's father educational level	482	14.11
Man's mother educational level	464	13.59
Woman's share of sole assets	0	0.00
Man's share of sole assets	0	0.00
Share of joint assets	0	0.00
Woman's share of sole ass (potential joint assets)	220	6.44
Man's share of sole assets (potential joint assets)	220	6.44
Joint share assets (potential joint assets)	220	6.44
Woman's personal gross wealth	0	0.00
Share of sole assets in woman's portfolio	173	5.07
Woman's personal gross wealth (potential joint assets)	0	0.00

Table A1, continued		
Man's personal gross wealth	0	0.00
Share of sole assets in man's portfolio	137	4.01
Man's personal gross wealth (potential joint assets)	0	0.00
Woman's sole private property (EUR)	0	0.00
Woman's sole financial assets (EUR)	0	0.00
Woman's sole building loan assets (EUR)	0	0.00
Man's sole private property (EUR)	0	0.00
Man's sole financial assets (EUR)	0	0.00
Man's sole building loan assets (EUR)	0	0.00
Woman's share sole debt	1530	44.80
Man's share sole debt	1530	44.80
Share of joint debts	1530	44.80
Woman's share sole debt (potential joint assets)	1817	53.21
Man's share sole debt (potential joint assets)	1817	53.21
Share joint debts (potential joint assets)	1817	53.21

Note: Potential joint assets include assets from the subset of primary housing, further real estate, and financial assets, which can be held either solely or jointly (see Figure 1).

Source: SOEP (2002, 2007, 2012, 2017).

Figure A1 Cluster cut-off criteria for Ward cluster analysis on pairwise distance matrix obtained with multichannel sequence analysis



Note: PBC = Point Biserial Correlation, HG = Hubert's Gamma, ASWw = Average Silhouette Width (weighted), R2sq = Pseudo R2, HC = Hubert's C.
Source: SOEP (2002, 2007, 2012, 2017); weighted, not imputed.

Table A2 Upper triangle correlations between full pairwise distance matrices computed with different distance measures

	OM	DHD	LCS	HAM
OM	1	.97	1	.97
DHD		1	.97	.99
LCS			1	.97
HAM				1

Note: OM=Optimal Matching (s=2, i=1), DHD=Dynamic Hamming distance, LCS=Longest Common Subsequence, HAM=Hamming distance.
Source: SOEP (2002, 2007, 2012, 2017); weighted, not imputed.

Figure A2 Relative frequency sequence plots of women's employment-marriage clusters

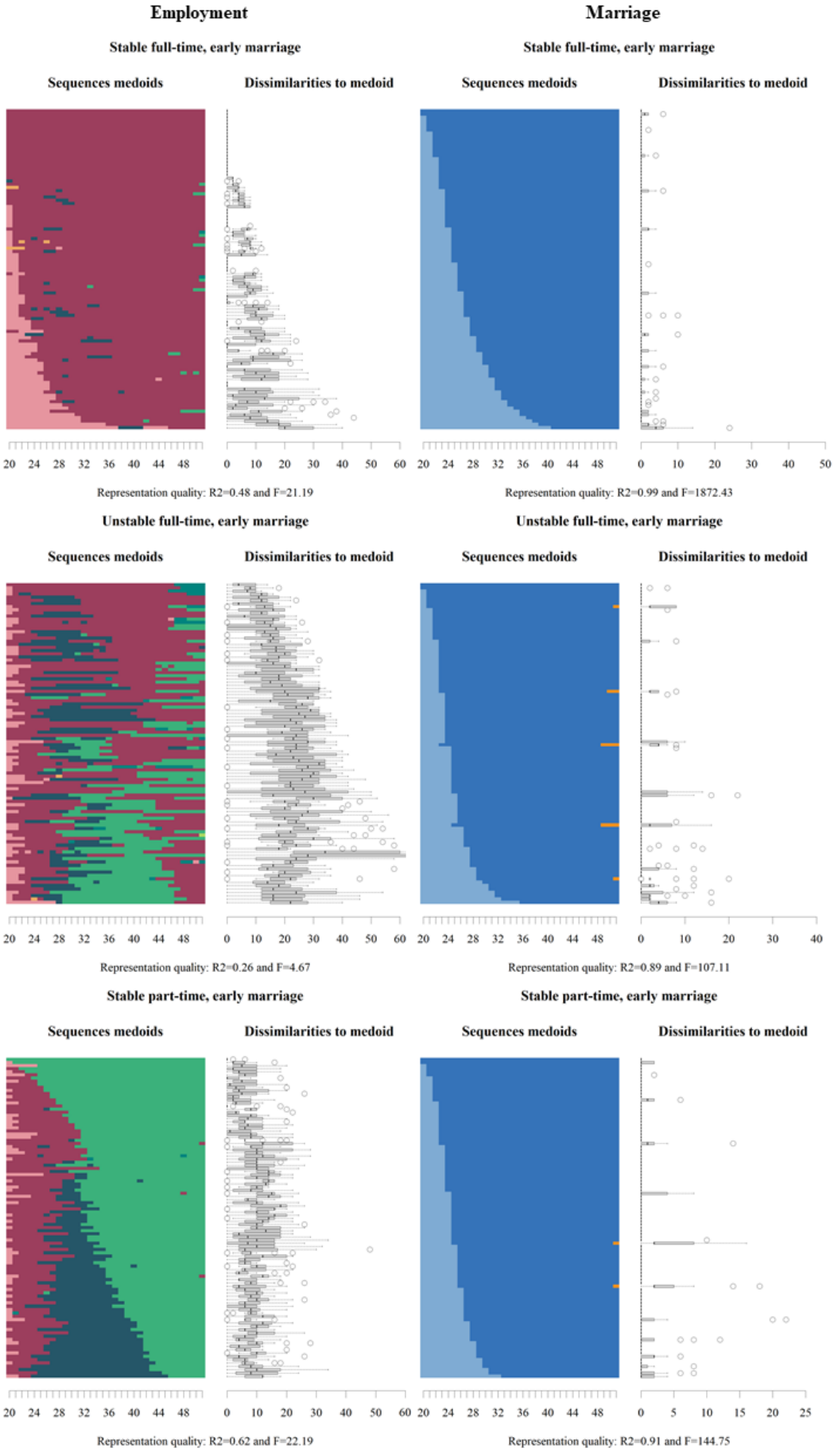


Figure A2, continued

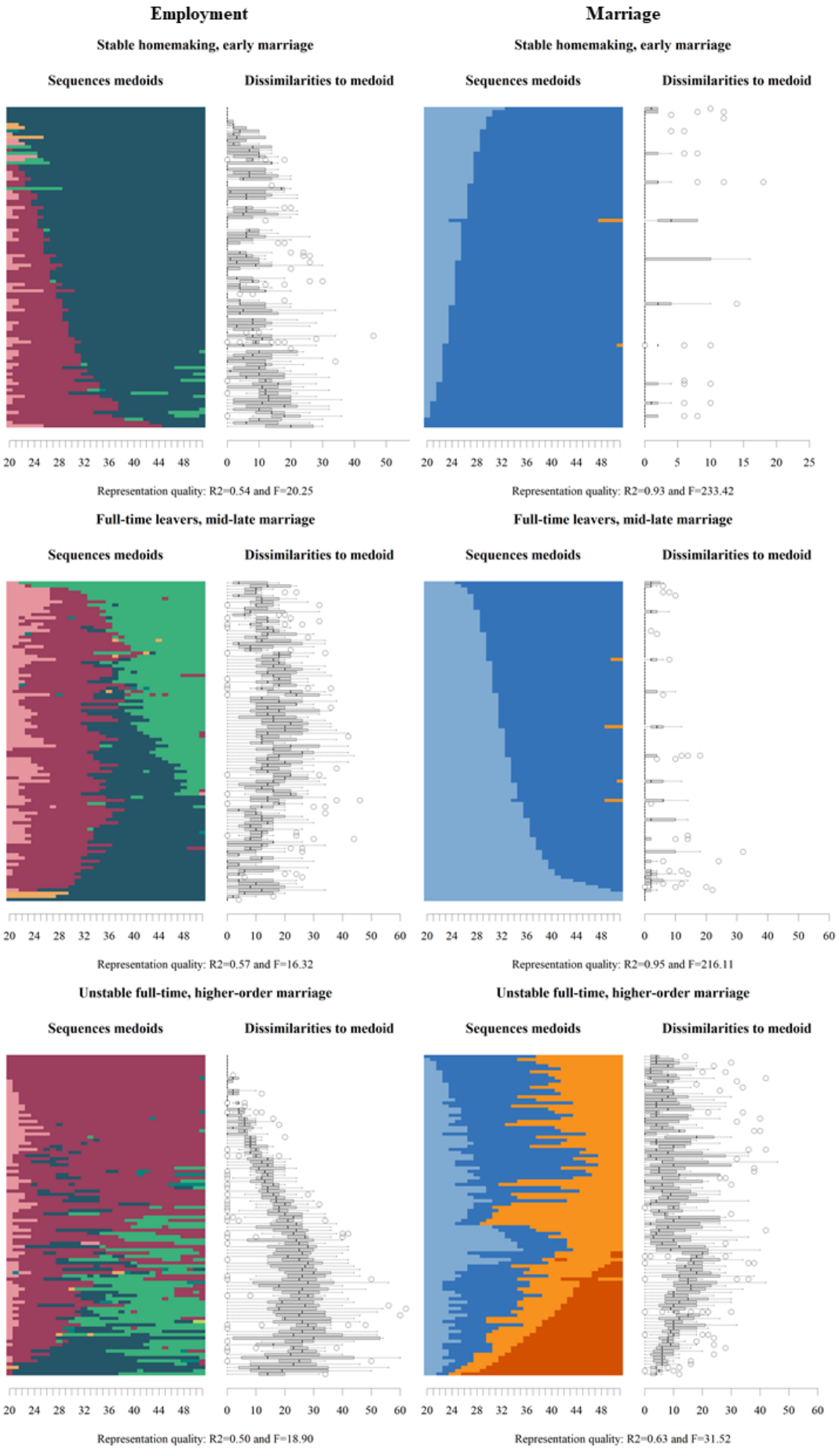
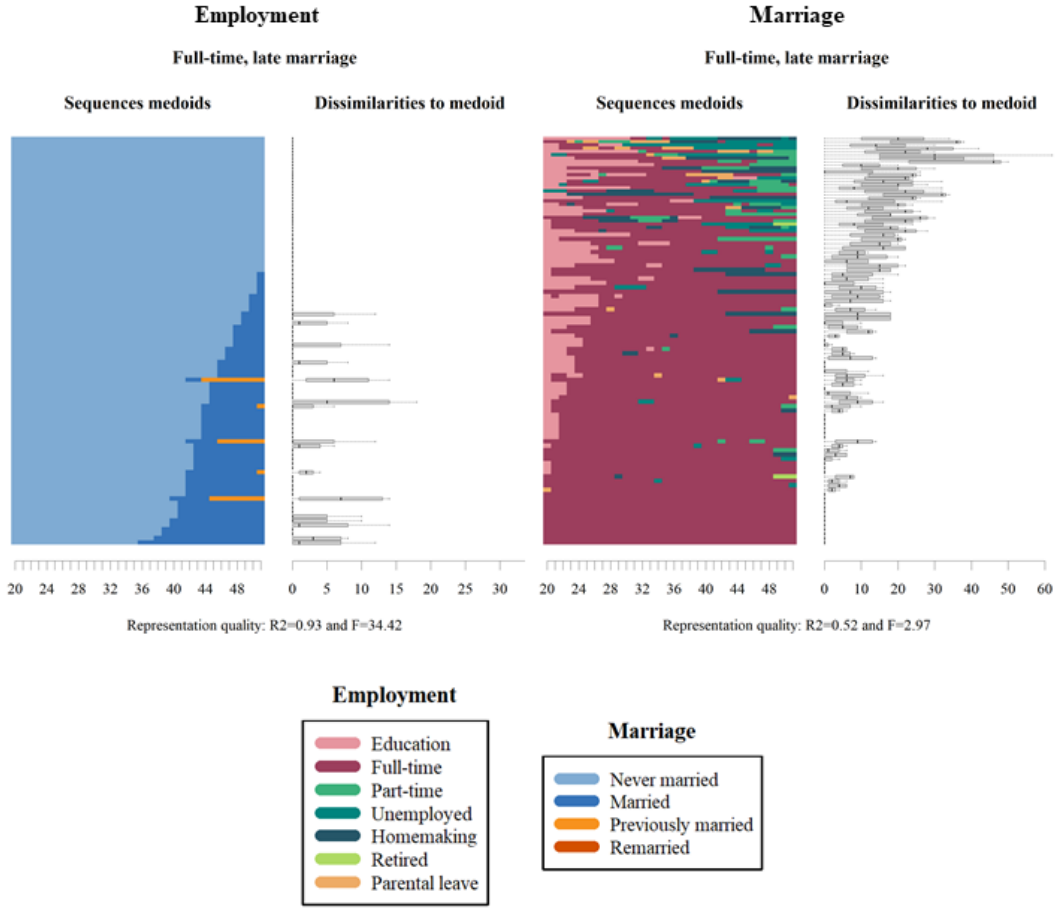


Figure A2, continued



Source: SOEP (2002, 2007, 2012, 2017); weighted, not imputed.

Table A3 Descriptive statistics by employment-marriage cluster

	Mean/ Prop	SD	Min	Max	Mean/ Prop	SD	Min	Max	Mean/ Prop	SD	Min	Max	Mean/ Prop	SD	Min	Max
	Cluster 1: Stable full-time, early marriage				Cluster 2: Unstable full-time, early marriage				Cluster 3: Stable part-time, early marriage				Cluster 4: Stable homemaking, early marriage			
Sole share of assets^{W}	0.20	0.28	0	1	0.17	0.27	0	1	0.15	0.24	0	1	0.12	0.24	0	1
Joint share of assets^{C}	0.56	0.37	0	1	0.55	0.38	0	1	0.58	0.36	0	1	0.60	0.37	0	1
Sole level of assets^{W}	93	279	0	4407	59	176	0	2550	59	183	0	2257	44	122	0	1490
Joint level of assets^{C}	130	151	0	1011	105	125	0	744	123	149	0	1576	142	214	0	2445
Sole share of assets^{M}	0.25	0.30	0	1	0.29	0.33	0	1	0.26	0.30	0	1	0.28	0.32	0	1
Sole level of assets^{M}	251	2666	0	64900	110	333	0	4516	179	913	0	21300	197	811	0	14200
Personal gross wealth^{W} (in thousand EUR)	216	316	0	5213	160	200	0	1700	179	228	0	2352	183	241	0	2468
Personal gross wealth^{M} (in thousand EUR)	374	2679	0	65300	221	371	0	5068	298	933	0	20100	339	875	0	14400
Number of children^{W}	1.42	1.08	0	6	1.95	0.95	0	6	2.11	0.89	0	6	2.31	1.18	0	12
Number of children^{M}	1.30	1.15	0	8	1.58	1.11	0	6	1.91	1.05	0	6	1.94	1.31	0	12
Personal inheritances^{W} (in thousand EUR)	8	43	0	430	12	68	0	900	12	48	0	500	14	69	0	740

Table A3, continued

	Cluster 1: Stable full-time, early marriage				Cluster 2: Unstable full-time, early marriage				Cluster 3: Stable part-time, early marriage				Cluster 4: Stable homemaking, early marriage			
Personal inheritances^{M} (in thousand EUR)	8	50	0	750	9	37	0	350	16	87	0	1500	32	282	0	6000
Age^{W}	56.01	5.33	50	74	55.40	4.96	50	75	55.48	5.20	50	76	57.14	5.66	50	76
Age^{M}	59.21	6.47	42	80	58.82	6.58	43	93	58.82	6.09	47	82	60.38	6.33	46	88
Region during childhood (ref. rural):																
Urban^{W}	0.41		0	1	0.40		0	1	0.33		0	1	0.38		0	1
Urban^{M}	0.42		0	1	0.37		0	1	0.32		0	1	0.37		0	1
Number of siblings^{W}	2.07	1.68	0	10.20	2.22	1.88	0	10	2.20	1.83	0	15	2.27	1.96	0	16
Number of siblings^{M}	2.08	1.79	0	11	2.32	2.05	0	14	2.28	1.84	0	14	2.22	1.88	0	10
Educational level^{W}:[a)]																
Low	0.12				0.16				0.12				0.19			
Intermediate	0.49		0	1	0.67		0	1	0.70		0	1	0.69		0	1
High	0.39				0.17				0.18				0.12			
Educational level^{M}:[a)]																
Low	0.09				0.08				0.06				0.08			
Intermediate	0.48		0	1	0.58		0	1	0.57		0	1	0.53		0	1
High	0.43				0.34				0.37				0.41			
Father's educational level^{W}:[a)]																
No degree	0.03				0.04				0.03				0.04			
Low	0.71		0	1	0.79		0	1	0.80		0	1	0.75		0	1
Intermediate	0.12				0.09				0.09				0.11			
High	0.15				0.08				0.08				0.10			
Father's educational level^{M}:[a)]																
No degree	0.03				0.05				0.03				0.03			
Low	0.71		0	1	0.75		0	1	0.81		0	1	0.73		0	1
Intermediate	0.13				0.11				0.09				0.12			
High	0.13				0.10				0.08				0.12			

Table A3, continued

	Cluster 1: Stable full-time, early marriage				Cluster 2: Unstable full-time, early marriage				Cluster 3: Stable part-time, early marriage				Cluster 4: Stable homemaking, early marriage			
Mother educational level^{W}: a)																
No degree	0.03				0.05				0.03				0.04			
Low	0.75		0	1	0.80		0	1	0.84		0	1	0.80		0	1
Intermediate	0.15				0.13				0.11				0.13			
High	0.07				0.03				0.02				0.04			
Mother's educational level^{M}: a)																
No degree	0.05				0.06				0.03				0.04			
Low	0.76		0	1	0.80		0	1	0.84		0	1	0.81		0	1
Intermediate	0.12				0.11				0.10				0.11			
High	0.06				0.02				0.04				0.05			
Age at first marriage^{W}	25.92	5.18	17	54	23.12	3.62	17	54	23.18	3.03	17	51	23.28	3.00	17	47
Age at first marriage^{M}	28.23	5.77	17	74	26.89	5.86	19	68	26.66	4.70	19	64	26.60	4.55	17	68
N	600				417				740				620			

Table A3, continued

	Mean/ Prop	SD	Min	Max	Mean/ Prop	SD	Min	Max	Mean/ Prop	SD	Min	Max
	Cluster 5: Full-time leavers, mid-late marriage				Cluster 6: Unstable full-time, higher-order marriage				Cluster 7: Full-time, late marriage			
Sole share of assets^{W}	0.18	0.28	0	1	0.28	0.34	0	1	0.28	0.33	0	1
Joint share of assets^{C}	0.52	0.37	0	1	0.37	0.39	0	1	0.36	0.39	0	1
Sole level of assets^{W}	81	249	0	4870	117	353	0	4515	138	568	0	6490
Joint level of assets^{C}	150	302	0	4780	76	151	0	1619	80	114	0	601
Sole share of assets^{M}	0.29	0.31	0	1	0.36	0.35	0	1	0.37	0.36	0	1
Sole level of assets^{M}	144	324	0	3516	233	1032	0	16800	204	586	0	6208
Personal gross wealth^{W} (in thousand EUR)	229	425	0	6171	186	381	0	4632	194	352	0	3674
Personal gross wealth^{M} (in thousand EUR)	301	559	0	6654	299	1070	0	17200	260	405	0	3637
Number of children^{W}	1.91	1.08	0	8	1.73	1.28	0	9	0.84	1.05	0	5
Number of children^{M}	1.90	1.14	0	8	1.18	1.14	0	6	1.16	1.12	0	6
Personal inheritances^{W} (in thousand EUR)	26	208	0	4000	7	27	0	235	22	111	0	1000

Table A3, continued

	Cluster 5: Full-time leavers, mid-late marriage				Cluster 6: Unstable full-time, higher-order marriage				Cluster 7: Full-time, late marriage			
Personal inheritances^{M} (in thousand EUR)	11	49	0	500	12	51	0	500	56	28	0	250
Age^{W}	54.68	4.59	50	76	55.60	4.72	50.00	72	56.26	5.39	50	74
Age^{M}	57.06	6.39	40	80	58.17	7.38	42.20	80	59.91	7.38	41	82
Region during childhood (ref. rural):												
Urban^{W}	0.43		0	1	0.50		0	1	0.44		0	1
Urban^{M}	0.44		0	1	0.49		0	1	0.52		0	1
Number of siblings^{W}	2.05	1.68	0	11	2.16	1.97	0	15	2.09	1.80	0	9
Number of siblings^{M}	1.90	1.69	0	11	2.04	1.75	0	12	2.03	1.68	0	9
Educational level^{W}: a)												
Low	0.07				0.12				0.06			
Intermediate	0.49		0	1	0.67		0	1	0.56		0	1
High	0.43				0.21				0.39			
Educational level^{M}: a)												
Low	0.04				0.05				0.04			
Intermediate	0.35		0	1	0.56		0	1	0.43		0	1
High	0.62				0.39				0.53			
Father's educational level^{W}: a)												
No degree	0.02				0.02				0.03			
Low	0.57		0	1	0.65		0	1	0.66		0	1
Intermediate	0.19				0.14				0.14			
High	0.22				0.18				0.17			
Father's educational level^{M}: a)												
No degree	0.03				0.03				0.05			
Low	0.65		0	1	0.70		0	1	0.62		0	1
Intermediate	0.15				0.13				0.13			
High	0.17				0.14				0.19			

Table A3, continued

	Cluster 5: Full-time leavers, mid-late marriage				Cluster 6: Unstable full-time, higher-order marriage				Cluster 7: Full-time, late marriage			
Mother educational level^{W}: a)												
No degree	0.04				0.03				0.05			
Low	0.65		0	1	0.78		0	1	0.70		0	1
Intermediate	0.23				0.11				0.19			
High	0.08				0.08				0.07			
Mother's educational level^{M}: a)												
No degree	0.04				0.02				0.08			
Low	0.69		0	1	0.77		0	1	0.61		0	1
Intermediate	0.20				0.15				0.22			
High	0.07				0.06				0.09			
Age at first marriage^{W}	32.16	6.71	19	71	24.03	6.53	17	60	44.50	9.56	20	71
Age at first marriage^{M}	32.57	7.61	20	71	31.06	10.30	18	81	38.65	12.47	19	80
N	559				325				136			

Note: $^{W/M/C}$ indicates that the variable applies to women/men/couples. a) marks calculation based on first imputation. Please note that the sum of individuals' sole and joint wealth does not result in personal gross wealth due to variations in the degree of jointly held wealth.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

Table A4 Fractional logit (models 1-2) and ordinary least square (models 3-4) regressions on women's sole shares and levels of sole and joint assets

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Employment-marriage cluster (ref.: Stable full-time, early marriage)				
Unstable full-time, early marriage	-0.31	-0.02	-0.98	-0.19
	(0.16)	(0.14)	(0.42)	(0.46)
	[0.05]	[0.89]	[0.02]	[0.68]
Stable part-time, early marriage	-0.27	0.11	-0.58	0.58
	(0.14)	(0.12)	(0.35)	(0.40)
	[0.06]	[0.37]	[0.10]	[0.15]
Stable homemaking, early marriage	-0.42	0.18	-1.71	0.26
	(0.16)	(0.13)	(0.39)	(0.42)
	[0.01]	[0.15]	[0.00]	[0.53]
Full-time to part-time/homemaking, mid-late marriage	-0.08	-0.10	-1.07	-0.34
	(0.17)	(0.14)	(0.40)	(0.47)
	[0.62]	[0.47]	[0.01]	[0.48]
Unstable full-time, higher-order marriage	0.44	-0.82	0.22	-3.16
	(0.18)	(0.16)	(0.51)	(0.55)
	[0.01]	[0.00]	[0.67]	[0.00]
Full-time, late marriage	0.23	-0.85	-0.27	-2.75
	(0.24)	(0.25)	(0.77)	(0.90)
	[0.33]	[0.00]	[0.72]	[0.00]
Personal inheritances^{W} (IHS-transformed)	0.02	0.02	0.08	0.09
	(0.01)	(0.01)	(0.03)	(0.03)
	[0.09]	[0.06]	[0.02]	[0.01]
Personal inheritances^{M} (IHS-transformed)	-0.04	-0.01	0.01	0.01
	(0.01)	(0.01)	(0.03)	(0.04)
	[0.01]	[0.52]	[0.74]	[0.77]
Age^{W}	0.05	-0.18	0.21	-0.65
	(0.16)	(0.13)	(0.42)	(0.39)
	[0.75]	[0.17]	[0.62]	[0.10]
Age-squared^{W}	-0.00	0.00	-0.00	0.01
	(0.00)	(0.00)	(0.00)	(0.00)
	[0.71]	[0.14]	[0.52]	[0.08]
Educational level^{W} (ref. low)				
Intermediate	-0.14	0.09	1.25	0.57
	(0.16)	(0.12)	(0.36)	(0.39)
	[0.38]	[0.44]	[0.00]	[0.14]
High	-0.13	0.18	1.82	1.14
	(0.19)	(0.15)	(0.45)	(0.48)
	[0.49]	[0.23]	[0.00]	[0.02]

Table A4, continued

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Educational level^{M} (ref.: low)				
Intermediate	-0.52	0.10	-0.66	0.70
	(0.17)	(0.16)	(0.43)	(0.57)
	[0.00]	[0.56]	[0.13]	[0.21]
High	-0.70	0.27	-0.29	1.89
	(0.20)	(0.18)	(0.46)	(0.60)
	[0.00]	[0.12]	[0.53]	[0.00]
Region during childhood^{W} (ref.: rural)				
Urban	0.03	-0.13	-0.55	-0.59
	(0.10)	(0.09)	(0.25)	(0.29)
	[0.76]	[0.14]	[0.03]	[0.04]
Region during childhood^{M} (ref.: rural)				
	0.35	-0.06	0.20	-0.04
	(0.11)	(0.09)	(0.25)	(0.29)
	[0.00]	[0.46]	[0.42]	[0.88]
Number of siblings^{W}	-0.03	-0.02	-0.13	-0.08
	(0.03)	(0.02)	(0.07)	(0.08)
	[0.44]	[0.43]	[0.08]	[0.27]
Number of siblings^{M}	0.04	0.02	-0.03	-0.04
	(0.02)	(0.02)	(0.07)	(0.07)
	[0.08]	[0.27]	[0.72]	[0.53]
Survey year (ref.: 2002)				
2007	0.25	-0.25	0.07	-1.12
	(0.13)	(0.11)	(0.34)	(0.40)
	[0.06]	[0.02]	[0.83]	[0.01]
2012	0.19	-0.09	-0.03	-0.37
	(0.13)	(0.10)	(0.32)	(0.33)
	[0.13]	[0.35]	[0.94]	[0.27]
2017	0.23	-0.02	0.27	-0.77
	(0.13)	(0.11)	(0.32)	(0.35)
	[0.07]	[0.82]	[0.40]	[0.03]
Age difference (ref.: woman older)				
Same age (+- 3 years)	-0.02	0.33	-0.11	1.36
	(0.20)	(0.21)	(0.71)	(0.74)
	[0.94]	[0.13]	[0.88]	[0.07]
Man older	0.14	0.25	-0.42	0.90
	(0.21)	(0.22)	(0.71)	(0.75)
	[0.52]	[0.25]	[0.56]	[0.23]
Constant	-2.42	4.49	4.33	25.31
	(4.84)	(3.79)	(12.29)	(11.60)
	[0.62]	[0.24]	[0.72]	[0.03]
Observations	3415	3415	3415	3415

Note: $^{W/M}$ indicates that the variable applies to women/men.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

Table A5 Fractional logit (models 1-2) and ordinary least square (models 3-4) regressions on women's sole shares and levels of sole and joint assets including couples with zero total gross worth

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Employment-marriage cluster (ref.: Stable full-time, early marriage)				
Unstable full-time, early marriage	-0.25	-0.06	-0.79	-0.05
	(0.15)	(0.13)	(0.42)	(0.46)
	[0.10]	[0.65]	[0.06]	[0.92]
Stable part-time, early marriage	-0.21	0.07	-0.07	1.10
	(0.14)	(0.12)	(0.37)	(0.41)
	[0.14]	[0.53]	[0.85]	[0.01]
Stable homemaking, early marriage	-0.38	0.14	-1.62	0.09
	(0.15)	(0.12)	(0.38)	(0.41)
	[0.01]	[0.25]	[0.00]	[0.82]
Full-time to part-time/homemaking, mid-late marriage	-0.04	-0.16	-0.85	-0.21
	(0.16)	(0.13)	(0.41)	(0.47)
	[0.79]	[0.21]	[0.04]	[0.65]
Unstable full-time, higher-order marriage	0.43	-0.84	0.30	-2.74
	(0.17)	(0.15)	(0.51)	(0.53)
	[0.01]	[0.00]	[0.55]	[0.00]
Full-time, late marriage	0.28	-0.97	-0.35	-2.55
	(0.19)	(0.24)	(0.77)	(0.87)
	[0.16]	[0.00]	[0.65]	[0.00]
Personal inheritances^{W} (IHS-transformed)	0.02	0.02	0.10	0.11
	(0.01)	(0.01)	(0.03)	(0.04)
	[0.10]	[0.06]	[0.00]	[0.00]
Personal inheritances^{M} (IHS-transformed)	-0.04	-0.00	0.04	0.03
	(0.01)	(0.01)	(0.03)	(0.03)
	[0.00]	[0.61]	[0.21]	[0.37]
Age^{W}	0.07	-0.19	0.15	-0.69
	(0.16)	(0.12)	(0.42)	(0.39)
	[0.64]	[0.12]	[0.73]	[0.08]
Age-squared^{W}	-0.00	0.00	-0.00	0.01
	(0.00)	(0.00)	(0.00)	(0.00)
	[0.60]	[0.09]	[0.63]	[0.06]
Educational level^{W} (ref. low)				
Intermediate	-0.18	0.16	1.70	1.14
	(0.14)	(0.11)	(0.35)	(0.37)
	[0.18]	[0.15]	[0.00]	[0.00]
High	-0.16	0.24	2.22	1.68
	(0.17)	(0.14)	(0.45)	(0.47)
	[0.34]	[0.09]	[0.00]	[0.00]

Table A5, continued

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Educational level^{M} (ref.: low)				
Intermediate	-0.42	0.04	0.17	1.36
	(0.16)	(0.15)	(0.44)	(0.50)
	[0.01]	[0.79]	[0.70]	[0.01]
High	-0.61	0.22	0.88	2.92
	(0.18)	(0.17)	(0.47)	(0.53)
	[0.00]	[0.18]	[0.06]	[0.00]
Region during childhood^{W} (ref.: rural)				
Urban	0.08	-0.18	-0.59	-0.57
	(0.10)	(0.09)	(0.26)	(0.28)
	[0.43]	[0.04]	[0.02]	[0.05]
Region during childhood^{M} (ref.: rural)				
	0.31	-0.06	-0.15	-0.41
	(0.10)	(0.09)	(0.26)	(0.29)
	[0.00]	[0.50]	[0.57]	[0.15]
Number of siblings^{W}	-0.03	-0.02	-0.14	-0.11
	(0.03)	(0.03)	(0.07)	(0.08)
	[0.38]	[0.43]	[0.04]	[0.16]
Number of siblings^{M}	0.04	0.03	-0.10	-0.14
	(0.02)	(0.02)	(0.07)	(0.07)
	[0.13]	[0.22]	[0.13]	[0.05]
Survey year (ref.: 2002)				
2007	0.26	-0.24	0.09	-1.07
	(0.13)	(0.11)	(0.34)	(0.38)
	[0.04]	[0.03]	[0.79]	[0.00]
2012	0.16	-0.09	-0.02	-0.43
	(0.12)	(0.09)	(0.32)	(0.33)
	[0.19]	[0.34]	[0.96]	[0.20]
2017	0.20	-0.01	0.29	-0.86
	(0.12)	(0.10)	(0.32)	(0.35)
	[0.11]	[0.93]	[0.37]	[0.01]
Age difference (ref.: woman older)				
Same age (+- 3 years)	-0.05	0.30	0.12	1.08
	(0.21)	(0.21)	(0.69)	(0.71)
	[0.83]	[0.15]	[0.86]	[0.13]
Man older	0.07	0.23	-0.35	0.47
	(0.22)	(0.21)	(0.70)	(0.71)
	[0.74]	[0.27]	[0.62]	[0.51]
Constant	-2.99	5.01	3.76	25.27
	(4.58)	(3.68)	(12.24)	(11.61)
	[0.51]	[0.17]	[0.76]	[0.03]
Observations	3784	3784	3784	3784

Note: $^{W/M}$ indicates that the variable applies to women/men.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

Table A6 Fractional logit (models 1-2) and ordinary least square (models 3-4) regressions on women's sole shares and levels of sole and joint assets based on potential joint assets

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Employment-marriage cluster (ref.: Stable full-time, early marriage)				
Unstable full-time, early marriage	-0.43	0.05	-0.92	-0.65
	(0.27)	(0.17)	(0.45)	(0.52)
	[0.12]	[0.78]	[0.04]	[0.21]
Stable part-time, early marriage	-0.21	0.10	-0.70	-0.94
	(0.19)	(0.15)	(0.37)	(0.42)
	[0.27]	[0.50]	[0.06]	[0.03]
Stable homemaking, early marriage	-0.51	0.05	-1.90	-1.27
	(0.20)	(0.15)	(0.40)	(0.45)
	[0.01]	[0.74]	[0.00]	[0.00]
Full-time to part-time/homemaking, mid-late marriage	-0.01	-0.13	-1.04	-0.52
	(0.21)	(0.17)	(0.42)	(0.51)
	[0.95]	[0.45]	[0.01]	[0.31]
Unstable full-time, higher-order marriage	0.27	-0.69	0.47	0.65
	(0.26)	(0.19)	(0.55)	(0.65)
	[0.30]	[0.00]	[0.39]	[0.32]
Full-time, late marriage	0.19	-1.02	-0.47	0.38
	(0.31)	(0.29)	(0.82)	(0.80)
	[0.54]	[0.00]	[0.56]	[0.64]
Personal inheritances^{W} (IHS-transformed)	0.04	0.01	0.08	0.09
	(0.02)	(0.01)	(0.03)	(0.04)
	[0.01]	[0.28]	[0.02]	[0.02]
Personal inheritances^{M} (IHS-transformed)	-0.05	-0.01	0.00	-0.00
	(0.02)	(0.01)	(0.03)	(0.04)
	[0.01]	[0.23]	[0.91]	[0.92]
Age^{W}	0.00	-0.24	0.08	0.06
	(0.22)	(0.16)	(0.44)	(0.45)
	[0.99]	[0.12]	[0.86]	[0.89]
Age-squared^{W}	0.00	0.00	-0.00	-0.00
	(0.00)	(0.00)	(0.00)	(0.00)
	[0.97]	[0.13]	[0.73]	[0.95]
Educational level^{W} (ref. low)				
Intermediate	0.11	0.05	1.44	0.82
	(0.24)	(0.15)	(0.40)	(0.41)
	[0.65]	[0.73]	[0.00]	[0.05]
High	0.12	0.06	1.87	1.52
	(0.27)	(0.18)	(0.49)	(0.51)
	[0.65]	[0.74]	[0.00]	[0.00]

Table A6, continued

	(1)	(2)	(3)	(4)
	Woman's sole share	Couple's joint share	Woman's sole assets (IHS)	Couple's joint assets (IHS)
	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]	B/(SE)/[p]
Educational level^{M} (ref.: low)				
Intermediate	-0.23	-0.10	-0.67	-0.21
	(0.23)	(0.20)	(0.49)	(0.55)
	[0.32]	[0.61]	[0.17]	[0.70]
High	-0.36	-0.02	-0.34	-0.21
	(0.24)	(0.22)	(0.52)	(0.59)
	[0.14]	[0.94]	[0.51]	[0.72]
Region during childhood^{W} (ref.: rural)				
Urban	-0.03	-0.04	-0.48	-0.62
	(0.14)	(0.10)	(0.27)	(0.29)
	[0.82]	[0.72]	[0.08]	[0.03]
Region during childhood^{M} (ref.: rural)				
	0.35	0.07	0.24	0.24
	(0.13)	(0.11)	(0.28)	(0.31)
	[0.01]	[0.51]	[0.39]	[0.44]
Number of siblings^{W}	-0.16	0.03	-0.12	-0.23
	(0.07)	(0.03)	(0.08)	(0.08)
	[0.02]	[0.41]	[0.11]	[0.01]
Number of siblings^{M}	0.00	0.07	-0.04	-0.11
	(0.03)	(0.03)	(0.08)	(0.07)
	[0.93]	[0.01]	[0.57]	[0.12]
Survey year (ref.: 2002)				
2007	0.41	-0.34	0.09	0.98
	(0.17)	(0.13)	(0.35)	(0.41)
	[0.02]	[0.01]	[0.79]	[0.02]
2012	0.27	-0.16	-0.07	0.51
	(0.17)	(0.12)	(0.33)	(0.35)
	[0.11]	[0.19]	[0.84]	[0.15]
2017	0.28	-0.01	0.20	0.74
	(0.19)	(0.13)	(0.34)	(0.39)
	[0.13]	[0.91]	[0.55]	[0.05]
Age difference (ref.: woman older)				
Same age (+- 3 years)	-0.32	0.17	-0.35	-0.50
	(0.27)	(0.25)	(0.63)	(0.77)
	[0.24]	[0.51]	[0.58]	[0.52]
Man older	-0.14	-0.03	-0.77	-0.65
	(0.29)	(0.26)	(0.64)	(0.78)
	[0.61]	[0.91]	[0.23]	[0.40]
Constant	-1.85	7.97	8.71	1.68
	(6.65)	(4.64)	(12.98)	(13.37)
	[0.78]	[0.09]	[0.50]	[0.90]
Observations	3157	3157	3157	3157

Note: $^{W/M}$ indicates that the variable applies to women/men.
Source: SOEP (2002, 2007, 2012, 2017); weighted, multiply imputed.

APPENDIX CHAPTER 4

Table A1 Overview of institutional similarities and differences between Britain and Western Germany affecting birth cohorts born between 1920 and 1960

	Britain	Western Germany
Female employment	- Strong historical male breadwinner state - Higher and earlier female employment rates - Prevalent male breadwinner/female part-timer model	- Strong historical male breadwinner state - Lower and slower increase in female employment - Prevalent male breadwinner/female homemaker and male breadwinner/female part-timer models
Part-time employment	- Average part-time employment rate[19] between 1976 and 2017: 23.8% - Average weekly working hours for part-time employees: around 15.5 (between 1992 and 2017) (Office for National Statistics, 2021)	- Average part-time employment rate[1] between 1976 and 2017: 22.2% - Average weekly working hours for part-time employees: around 15.5 (between 1992 and 2017) (Institute for Employment Research, 2019)
Marital property regime	- During marriage each spouse remain owner of his/her wealth - No defined marital property regime - Courts have wide discretion in the division of assets at divorce	- Default property regime of the community of accrued gains since 1958 - During marriage each spouse remain owner of his/her wealth - Surplus gains accrued during marriage are split equally at divorce
Taxation in marriage	- Single taxation - No tax incentives for unequal labor market participation within marriage	- Joint taxation with full income splitting - Tax incentives for unequal labor market participation within marriage
Public childcare	- High childcare availability for children of all age groups - High costs of childcare	- Low childcare availability for children of less than three years

[19] The part-time employment rate indicates the proportion of persons employed part-time among all employed persons (OECD, 2021).

Table A1, continued

	Britain	Western Germany
Housing system	- Dynamic: housing as object for accommodation and investments - Government incentivizes homeownership - Low housing costs and taxation	- Static: housing as once-in-a-lifetime investment - Government restricts access to homeownership - High housing costs and taxation
Ownership of housing and financial wealth	- In our sample of married women aged 55 and older, 85.5% of women are homeowners and 75.8% own financial wealth	- In our sample of married women aged 55 and older, 70.3% of women are homeowners and 73.6% own financial wealth
Unemployment benefits	- Comprehensive contribution-based benefits for the first time in unemployment (Jobseeker's Allowance since 1996) - Less generous minimum income schemes after six months of unemployment	- Comprehensive contribution-based benefits for the first time in unemployment (unemployment benefit I) - More generous minimum income schemes after twelve months of unemployment (Hartz IV since 2005)
Pension system	- Lower public and higher occupational and private pensions - Strong occupational segregation in part-time employment - Part-time positions often excluded from access to pension entitlements	- Higher public and higher occupational and private pensions - Part-time employment often covered by access to pension entitlements

Marriages and Divorces in Britain and Western Germany

Figure A1 Number of marriages and divorces per 1000 population in Germany and Britain, 1960-2017

Note: Between 1960 and 1989, marriages and divorces are reported for the Federal Republic of Germany (FRG), from 1990 onwards data are only available for unified Germany.
Source: OECD family database (http://www.oecd.org/els/family/database.htm), Federal Statistical Office (destatis) for FRG 1960-1989 (https://www.destatis.de/EN/Themes/Society-Environment/Population/Marriages-Divorces-Life-Partnerships/Tables/lrbev06.html#fussnote-1-267640, both derived 04/03/2021).

Table A2 Proportion of married and divorced individuals in analytical samples in Britain and Western Germany

	Britain				Western Germany			
			Observations				Observations	
	Married	Divorced	N	%	Married	Divorced	N	%
Women's birth cohorts:								
<1943	.93	.07	674	20.56	.93	.07	333	20.28
1943-1952	.88	.12	1359	41.46	.89	.11	580	35.32
1953-1962	.85	.15	1245	37.98	.89	.11	729	44.40
Men's birth cohorts:								
<1943	.91	.09	959	29.26	.91	.09	501	30.51
1943-1952	.89	.11	1379	42.07	.88	.12	630	38.37
1953-1962	.89	.11	855	26.08	.93	.07	456	27.77
>1962	.87	.13	85	2.59	.82	.18	55	3.35

Source: UKHLS (2016-2018) and SOEP (2017).

Multiple imputation

Multiple imputation procedure of wealth data and other analytical variables

Wealth is considered a sensitive information that is usually collected with high non-response rates. To account for item non-response, we applied multiple imputation to avoid biased measures through measurement error. The exclusion of missing values (listwise deletion) would substantially reduce the sample sizes for these analyses and therefore result in less stable coefficient estimates. Further, listwise deletion is likely to result in biased estimates if the missingness mechanism is selective on other variables, i.e., respondents are not equally likely to respond to a certain question. This selection bias can be addressed by multiple imputation under the assumption of missing at random (MAR), which accounts for other observed variables, e.g., gender or parental status, that explain the underlying missingness patterns (Rubin, 1976).

Multiple imputation is a method that replaces missing values with multiple estimates for these values (Van Buuren, 2012). In contrast to single imputations, imputed values are drawn *m* times, each time generating a new data set. The *M* imputed data sets are then analyzed separately before pooling them into one result to gain one estimate and its variance. Compared with single imputations, multiple imputation should also be preferred to attenuate the impact of potential 'odd' imputations, i.e. 'bad' estimates, that may produce misleading parameter estimates. Each imputation adds random noise, which is reflected in highly conservative regression estimates. In this study, the analyses are based on average estimates of a total of m=5 imputations to minimize the influence of single imputations.

To ensure the quality of the imputations for the SOEP, we drew on multiply imputed wealth measures with five sets of imputations by the SOEP survey team (Grabka & Westermeier, 2015). The SOEP team ensures the quality of the imputed data through a variety of internal checks and comparisons to external data from wealth surveys conducted by the German Federal Bank and Statistical Federal Office. As the UKHLS did not provide multiply imputed wealth data, we imputed them ourselves by additionally including single wealth components as auxiliary variables in the models to improve the quality of the predictions. The wealth components included are

personal savings, primary housing wealth (net and gross), financial and mortgage debts as well as household-level investments and vehicles. For both surveys, we conducted imputation diagnostics that compared the distributions of observed and imputed values across variables.

We imputed missing values separately by context for the analytical variables in two separate imputation models. Due to the use of longitudinal data from the repeated wealth surveys in the UKHLS and SOEP, the quality of the imputation can be considerably improved by using wealth information collected in earlier waves as auxiliary variables for wealth holdings in later waves (von Hippel, 2007). For the UKHLS, we therefore additionally included wealth information from Wave 4. For the SOEP, we additionally included wealth information from 2002, 2007, and 2012.[20] We further imputed missing observations in the couples' cluster membership and other covariates in the regression analyses (see Tables A3 and A4 below).

The analytical sample comprised 19.82% of all couples in Britain and 38.86% in Germany that provided no or incomplete information on their wealth holdings. In the following, we explain how the varying proportions of missing cases in the two countries occurred. In the UKHLS, wealth is collected following a bottom-up approach, so respondents were asked about the value in each single wealth component they could potentially own. For instance, respondents were separately asked about the money in their current balance in savings or deposit accounts, National Savings Accounts, ISA cash, ISA stocks and shares, and Premium Bonds (UKHLS, 2018). In the SOEP, wealth is collected with a less detailed approach, with respondents being asked about the total value under a certain type of wealth (SOEP, 2017). For instance, they were asked about the sum of their financial assets, be it in the form of savings accounts, bonds, shares, or investments. For both surveys, we calculated respondents' personal net wealth as the sum of each asset component they hold individually and their share of jointly held wealth minus their debts.

Following from these survey-related differences, it is likely that financial assets in the SOEP are underreported due to the summarized measure. Compared with the UKHLS, respondents in the

[20] For the SOEP, we draw on respondents' wealth observations from prior waves in addition to the imputations conducted by the SOEP team. This is because the gender wealth gap as our outcome variable is a newly generated measure that has not been directly imputed.

SOEP had a higher proportion of item non-response. This is likely due to the high burden the question about the total value of a group of assets imposes or a lack of knowledge about some of the including components. In the UKHLS, in contrast, respondents might be likely to report at least parts of their assets, for instance if they know about the value they have in a certain savings account. Consequently, we decided to treat wealth information from respondents in Britain as complete if they provided partly incomplete wealth information for two interrelated reasons. First, it is likely that respondents in the SOEP did not consider all wealth components when reporting the total value as well, either because they might not know the value of single wealth components or forgot to consider some asset types. Second, discarding the (incomplete) wealth information provided by the respondents in the UKHLS by setting the whole observation to missing is also problematic, as imputations would add inefficiency where actual data were provided. We tested an alternative approach by including the completed, detailed wealth components in the British imputation model to predict the remaining missing components as a comprehensive set of auxiliary variables. However, this approach did not perform well due to the low proportion of respondents holding a particular type of asset paired with strong multicollinearity.

Table A3 Overview of variables used for the imputation models including number and shares of missing cases in Britain

		Number	Percentage
Wealth measures (2017)	Gender wealth gap (rank)	525	19.82
	Gender wealth gap (raw)	525	19.82
	Pers. net wealth man (rank)	474	17.89
	Pers. net wealth woman (rank)	443	16.72
	Pers. net wealth man (raw)	474	17.89
	Pers. net wealth woman (raw)	443	16.72
Main predictor	Dyadic employment cluster	572	21.59
Control variables	Age man	0	0.00
	Age woman	0	0.00
	Birth cohort man	0	0.00
	Birth cohort woman	0	0.00
	School education man	3	0.11
	School education woman	7	0.26
	Region type	1	0.04
	Father education man	471	17.78
	Mother education man	441	16.65
	Father education woman	430	16.23
	Mother education woman	323	12.19
Auxiliary variables in imputation model	Gender wealth gap 2012 (rank)	528	19.93
	Gender wealth gap 2012 (raw)	528	19.93
	Pers. net wealth man 2012 (rank)	445	16.80
	Pers. net wealth woman 2012 (rank)	391	14.76
	Pers. net wealth man 2012 (raw)	445	16.80
	Pers. net wealth woman 2012 (raw)	391	14.76
	Savings man 2017 (raw)	109	4.11
	Savings woman 2017 (raw)	54	2.04
	Savings man 2012 (raw)	235	8.87
	Savings woman 2012 (raw)	146	5.51
	Net housing man 2017 (raw)	202	7.63
	Net housing woman 2017 (raw)	202	7.63
	Net housing man 2012 (raw)	217	8.19
	Net housing woman 2012 (raw)	205	7.74
	Gross housing man 2017 (raw)	202	7.63
	Gross housing woman 2017 (raw)	202	7.63
	Gross housing man 2012 (raw)	217	8.19
	Gross housing woman 2012 (raw)	205	7.74
	Financial debts man 2017 (raw)	109	4.11
	Financial debts woman 2017 (raw)	54	2.04
	Financial debts man 2012 (raw)	235	8.87
	Financial debts woman 2012 (raw)	146	5.51
	Mortgage debts man 2017 (raw)	189	7.13

Table A3, continued

		Number	Percentage
Auxiliary variables in imputation model	Mortgage debts woman 2017 (raw)	136	5.13
	Mortgage debts man 2012 (raw)	237	8.95
	Mortgage debts woman 2012 (raw)	148	5.59
	Household investments 2017 (raw)	104	3.93
	Household investments 2012 (raw)	139	5.25
	Household vehicles 2017 (raw)	191	7.21
	Household vehicles 2012 (raw)	218	8.23
	Age at marriage man	0	0.00
	Age at marriage woman	0	0.00
	Number of children man	0	0.00
	Number of children woman	0	0.00

Note: Rank indicates rank-transformed, raw indicated untransformed wealth values in EUR. As the UKHLS does not provide reliable information on children living outside the household, the variable "number of children" is based on vague estimations for men and women.

Table A4 Overview of variables used for the imputation models including number and shares of missing cases in Western Germany

		Number	Percentage
Wealth measures (2017)	Gender wealth gap harm. (rank)	533	38.68
	Gender wealth gap harm. (raw)	533	38.68
	Pers. net wealth harm. man (rank)	378	27.43
	Pers. net wealth harm. woman (rank)	411	29.83
	Pers. net wealth man (raw)	378	27.43
	Pers. net wealth woman (raw)	411	29.83
Main predictor	Dyadic employment cluster	35	2.54
Control variables	Age man	0	0.00
	Age woman	0	0.00
	Birth cohort man	0	0.00
	Birth cohort woman	0	0.00
	School education man	12	0.87
	School education woman	13	0.94
	Region type	0	0.00
	Father education man	70	5.08
	Mother education man	63	4.57
	Father education woman	92	6.68
	Mother education woman	73	5.30
Auxiliary variables in imputation model	Gender wealth gap full 2017 (rank)	566	41.07
	Gender wealth gap full 2017 (raw)	566	41.07
	Pers. net wealth man full 2017 (rank)	395	28.66
	Pers. net wealth full woman 2017 (rank)	444	32.22
	Pers. net wealth full man 2017 (raw)	395	28.66
	Pers. net wealth full woman 2017 (raw)	444	32.22
	Gender wealth gap harm. 2012 (rank)	736	53.41
	Gender wealth gap harm. 2012 (raw)	736	53.41
	Gender wealth gap full 2012 (rank)	764	55.44
	Gender wealth gap full 2012 (raw)	764	55.44
	Pers. net wealth harm. man 2012 (rank)	609	44.19
	Pers. net wealth harm. woman 2012 (rank)	635	46.08
	Pers. net wealth harm. man 2012 (raw)	609	44.19
	Pers. net wealth harm. woman 2012 (raw)	635	46.08
	Pers. net wealth full man 2012 (rank)	618	44.85
	Pers. net wealth full woman 2012 (rank)	666	48.33
	Pers. net wealth full man 2012 (raw)	618	44.85
	Pers. net wealth full woman 2012 (raw)	666	48.33
	Gender wealth gap harm. 2007 (rank)	888	64.44
	Gender wealth gap harm. 2007 (raw)	888	64.44
	Gender wealth gap full 2007 (rank)	897	65.09
	Gender wealth gap full 2007 (raw)	897	65.09
	Pers. net wealth harm. man 2007 (rank)	803	58.27
	Pers. net wealth harm. woman 2007 (rank)	792	57.47
	Pers. net wealth harm. man 2007 (raw)	803	58.27
	Pers. net wealth harm. woman 2007 (raw)	792	57.47
	Pers. net wealth full man 2007 (rank)	808	58.64
	Pers. net wealth full woman 2007 (rank)	805	58.42
	Pers. net wealth full man 2007 (raw)	808	58.64
	Pers. net wealth full woman 2007 (raw)	805	58.42
	Gender wealth gap harm. 2002 (rank)	964	69.96

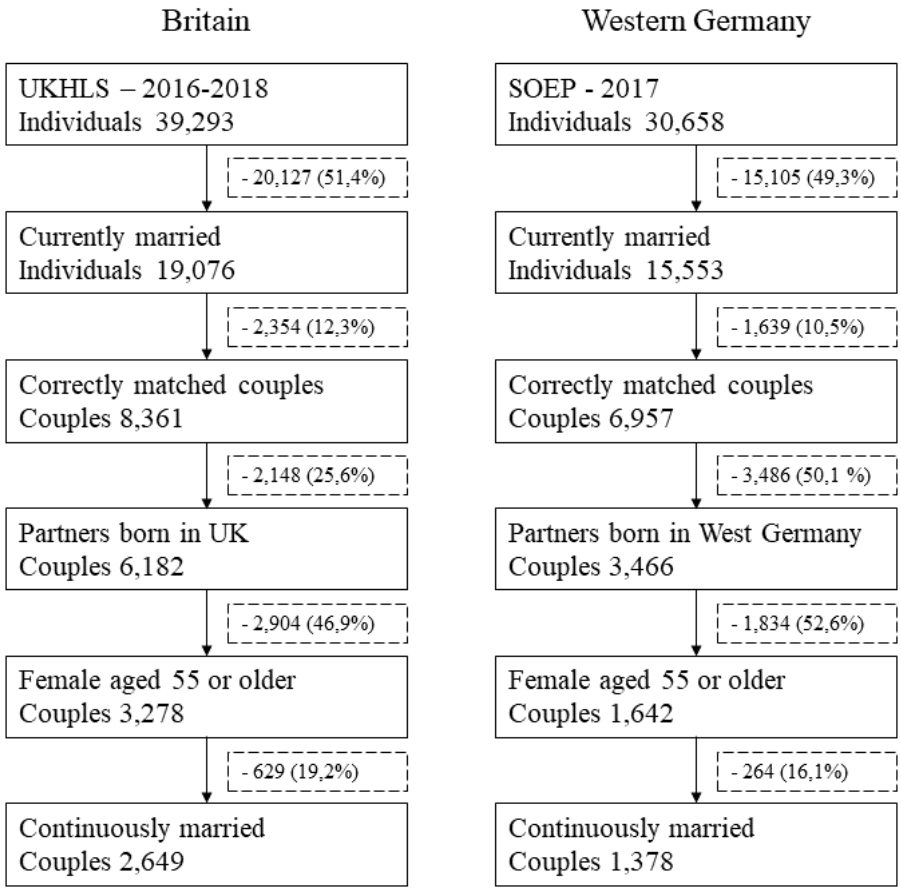
Table A4, continued

Auxiliary variables in imputation model	Gender wealth gap harm. 2002 (raw)	964	69.96
	Gender wealth gap full 2002 (rank)	998	72.42
	Gender wealth gap full 2002 (raw)	998	72.42
	Pers. net wealth harm. man 2002 (rank)	882	64.01
	Pers. net wealth harm. woman 2002 (rank)	912	66.18
	Pers. net wealth harm. man 2002 (raw)	882	64.01
	Pers. net wealth harm. woman 2002 (raw)	912	66.18
	Number of children woman	0	0.00
	Pers. net wealth full man 2002 (rank)	907	65.82
	Pers. net wealth full woman 2002 (rank)	931	67.56
	Pers. net wealth full man 2002 (raw)	907	65.82
	Pers. net wealth full woman 2002 (raw)	931	67.56
	Age at marriage man	0	0.00
	Age at marriage woman	0	0.00
	Number of children man	0	0.00
	Father birth year man	59	4.28
	Mother birth year man	47	3.41
	Father birth year woman	69	5.01
	Mother birth year woman	58	4.21
	Number of siblings man	20	1.45
	Number of siblings woman	26	1.89
	Inheritances man (IHS)	24	1.74
	Inheritances woman (IHS)	39	2.83
	Household inheritances (IHS)	1	0.07

Note: As the UKHLS does not collect data on further real estate, business assets, and tangible assets, we built a harmonized wealth measure for the main analyses as well as a "full" wealth measure for additional robustness checks with the SOEP data. For further information on the wealth module, see SOEP core individual questionnaire 2017 (https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.611290.de/diw_ssp0563.pdf, derived 01/30/2021).

Sample selection

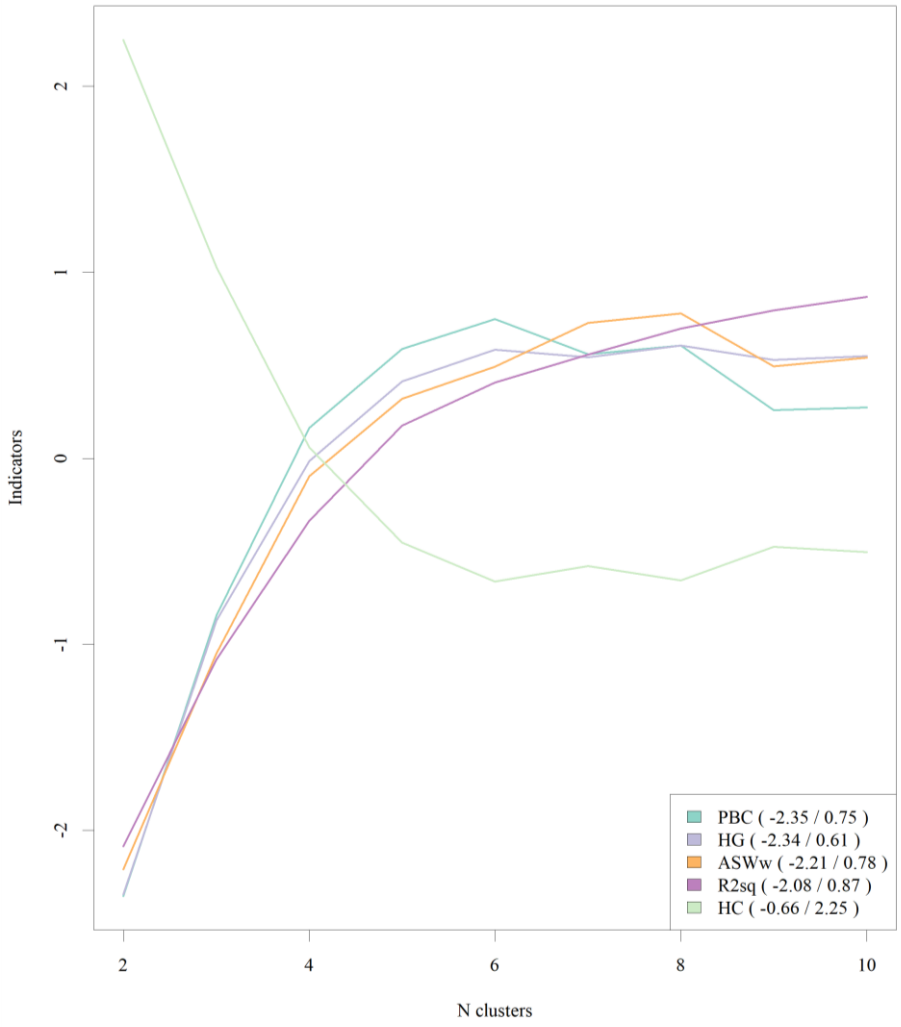
Figure A2 Sample selection flowchart for UKHLS and SOEP



Note: Unmatched couples are due to non-respondent partners or impossible matching based on partners' ID variables in both UKHLS and SOEP.

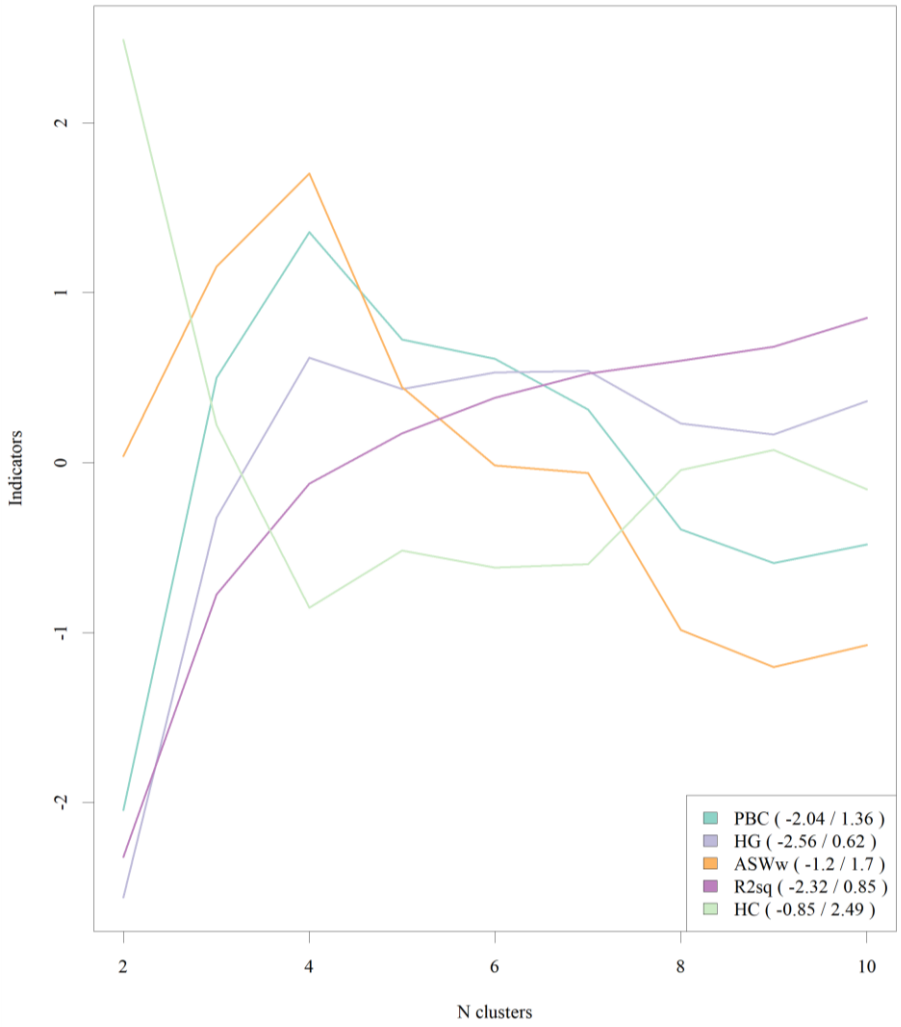
Sequence analysis

Figure A3 Cluster cut-off criteria for Ward cluster analysis on pairwise distance matrix obtained with sequence analysis for Britain



Note: PBC = Point Biserial Correlation, HG = Hubert's Gamma, ASWw = Average Silhouette Width (weighted), R2sq = Pseudo R2, HC = Hubert's C.
Source: UKHLS (2016-2018); weighted, not imputed.

Figure A4 Cluster cut-off criteria for Ward cluster analysis on pairwise distance matrix obtained with sequence analysis for Western Germany



Note: PBC = Point Biserial Correlation, HG = Hubert's Gamma, ASWw = Average Silhouette Width (weighted), R2sq = Pseudo R2, HC = Hubert's C.
Source: SOEP (2017); weighted, not imputed.

Table A5 Upper triangle correlations between full pairwise distance matrices computed with different distance measures

	Britain (UKHLS)			Western Germany (SOEP)		
	OM	OMspell	DHD	OM	OMspell	DHD
OM	1	.91	.97	1	.93	.97
OMspell		1	.89		1	.90
DHD			1			1

Note: OM=Optimal Matching (s=2, i=1), OMspell=Optimal Matching distance between spells, DHD=Dynamic Hamming Distance.
Source: UKHLS (2016-2018) and SOEP (2017); weighted, not imputed

Descriptive statistics

Table A6 Descriptive statistics for individuals by dyadic employment clusters in Britain (N = 2649)

	(1) Stable 2.0 BW, early marriage				(2) 1.5 MBW to 2.0 BW, early marriage				(3) 1.0 MBW to 2.0 BW, early marriage				(4) 1.0 to 1.5 MBW, early marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Personal net wealth man (in EUR 1,000)	229	218	-115	1273	227	187	0.00	766	237	212	-27	1460	249	247	-16	2631
Personal net wealth woman (in EUR 1,000)	225	220	-5	2073	220	240	-4	1482	225	1810	-2	886	231	219	-27	2631
Mean proportion of gender wealth gap of couple's total net worth	0.01		.00	1.00	0.02		.00	1.00	0.03		.00	1.00	0.04		.00	1.00
Median proportion of gender wealth gap of couple's total net worth	.00		.00	1.00	.00		.00	1.00	.00		.00	1.00	.00		.00	1.00
Age man	69.29	7.98	54.00	91.00	69.67	8.47	55.00	90.00	70.91	7.70	56.00	94.00	69.76	7.85	53.00	95.00
Age woman	67.25	7.78	55.00	91.00	67.12	8.03	55.00	92.00	69.10	7.65	55.00	92.00	67.72	7.53	55.00	91.00
Birth cohort man																
<1943	.29		.00	1.00	.29		.00	1.00	.35		.00	1.00	.31		.00	1.00
1943-1952	.44		.00	1.00	.49		.00	1.00	.48		.00	1.00	.47		.00	1.00
1953-1962	.26		.00	1.00	.22		.00	1.00	.17		.00	1.00	.22		.00	1.00
Birth cohort woman																
<1943	.20		.00	1.00	.16		.00	1.00	.27		.00	1.00	.23		.00	1.00
1943-1952	.44		.00	1.00	.51		.00	1.00	.48		.00	1.00	.45		.00	1.00
1953-1962	.36		.00	1.00	.33		.00	1.00	.25		.00	1.00	.32		.00	1.00
Age at marriage man	25.21	4.71	17.00	44.00	24.06	2.39	21.00	31.00	24.52	3.78	19.00	46.00	25.39	5.10	16.00	51.00
Age at marriage woman	23.10	4.17	16.00	39.00	21.61	2.31	18.00	27.00	22.68	3.16	18.00	34.00	23.33	4.71	16.00	44.00

Table A6, continued

	(1) Stable 2.0 BW, early marriage				(2) 1.5 MBW to 2.0 BW, early marriage				(3) 1.0 MBW to 2.0 BW, early marriage				(4) 1.0 to 1.5 MBW, early marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Parent man	.83		.00	1.00	.98		.00	1.00	.98		.00	1.00	.95		.00	1.00
Parent woman	.83		.00	1.00	.96		.00	1.00	.98		.00	1.00	.95		.00	1.00
Education man																
Low	.30		.00	1.00	.27		.00	1.00	.24		.00	1.00	.26		.00	1.00
Intermediate	.34		.00	1.00	.35		.00	1.00	.35		.00	1.00	.36		.00	1.00
High	.35		.00	1.00	.39		.00	1.00	.42		.00	1.00	.37		.00	1.00
Education woman																
Low	.31		.00	1.00	.27		.00	1.00	.28		.00	1.00	.36		.00	1.00
Intermediate	.28		.00	1.00	.39		.00	1.00	.36		.00	1.00	.34		.00	1.00
High	.41		.00	1.00	.35		.00	1.00	.36		.00	1.00	.30		.00	1.00
Education man's father																
Low	.75		.00	1.00	.81		.00	1.00	.73		.00	1.00	.77		.00	1.00
Intermediate	.20		.00	1.00	.15		.00	1.00	.21		.00	1.00	.19		.00	1.00
High	.04		.00	1.00	.04		.00	1.00	.06		.00	1.00	.04		.00	1.00
Education man's mother																
Low	.89		.00	1.00	.89		.00	1.00	.88		.00	1.00	.89		.00	1.00
Intermediate	.10		.00	1.00	.11		.00	1.00	.10		.00	1.00	.08		.00	1.00
High	.02		.00	1.00	.00		.00	1.00	.02		.00	1.00	.02		.00	1.00
Education woman's father																
Low	.70		.00	1.00	.74		.00	1.00	.68		.00	1.00	.68		.00	1.00
Intermediate	.25		.00	1.00	.16		.00	1.00	.25		.00	1.00	.26		.00	1.00
High	.04		.00	1.00	.10		.00	1.00	.06		.00	1.00	.05		.00	1.00

Table A6, continued

	(1) Stable 2.0 BW, early marriage				(2) 1.5 MBW to 2.0 BW, early marriage				(3) 1.0 MBW to 2.0 BW, early marriage				(4) 1.0 to 1.5 MBW, early marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Education woman's mother																
Low	.85		.00	1.00	.90		.00	1.00	.84		.00	1.00	.84		.00	1.00
Intermediate	.14		.00	1.00	.08		.00	1.00	.12		.00	1.00	.13		.00	1.00
High	.01		.00	1.00	.02		.00	1.00	.04		.00	1.00	.03		.00	1.00
Region type																
Rural	.35		.00	1.00	.24		.00	1.00	.33		.00	1.00	.28		.00	1.00
Urban	.65		.00	1.00	.76		.00	1.00	.67		.00	1.00	.72		.00	1.00
N	404				49				242				696			

Table A6, continued

	(5) Stable 1.0 MBW, early marriage				(6) Low work intensity, early marriage				(7) Fem. full-timer, late marriage, early marriage				(8) Fem. part-timer/homem., late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Personal net wealth man (in EUR 1,000)	255	316	-7	2529	224	265	-1	1871	200	214	-15	1415	145	140	-7	1160
Personal net wealth woman (in EUR 1,000)	241	297	-3	2167	204	200	-11	983	214	216	-10	1468	122	109	-3	573
Mean proportion of gender wealth gap of couple's total net worth	0.03		.00	1.00	0.05		.00	1.00	0.03		.00	1.00	0.09		.00	1.00
Median proportion of gender wealth gap of couple's total net worth	.00		.00	1.00	.00		.00	1.00	.00		.00	1.00	.00		.00	1.00
Age man	73.16	8.15	56.00	97.00	70.08	7.50	56.00	92.00	68.68	7.49	54.00	87.00	70.82	7.93	54.00	89.00
Age woman	71.01	8.14	55.00	92.00	68.15	7.49	55.00	87.00	67.54	7.24	55.00	90.00	68.62	7.19	55.00	98.00
Birth cohort man																
<1943	.48		.00	1.00	.32		.00	1.00	.30		.00	1.00	.38		.00	1.00
1943-1952	.40		.00	1.00	.46		.00	1.00	.43		.00	1.00	.46		.00	1.00
1953-1962	.11		.00	1.00	.22		.00	1.00	.26		.00	1.00	.16		.00	1.00
Birth cohort woman																
<1943	.41		.00	1.00	.23		.00	1.00	.21		.00	1.00	.27		.00	1.00
1943-1952	.39		.00	1.00	.49		.00	1.00	.46		.00	1.00	.49		.00	1.00
1953-1962	.20		.00	1.00	.27		.00	1.00	.33		.00	1.00	.24		.00	1.00
Age at marriage man	26.12	5.80	18.00	55.00	24.90	4.43	18.00	46.00	51.89	10.30	25.00	77.00	54.78	8.55	23.00	74.00
Age at marriage woman	23.91	4.78	16.00	41.00	23.02	3.76	17.00	39.00	50.43	9.34	32.00	74.00	52.58	7.69	36.00	71.00
Parent man	.94		.00	1.00	.92		.00	1.00	.77		.00	1.00	.95		.00	1.00
Parent woman	.95		.00	1.00	.94		.00	1.00	.79		.00	1.00	.98		.00	1.00

Table A6, continued

	(5) Stable 1.0 MBW, early marriage				(6) Low work intensity, early marriage				(7) Fem. full-timer, late marriage, early marriage				(8) Fem. part-timer/homem., late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Education man																
Low	.30		.00	1.00	.37		.00	1.00	.21		.00	1.00	.37		.00	1.00
Intermediate	.35		.00	1.00	.28		.00	1.00	.37		.00	1.00	.37		.00	1.00
High	.35		.00	1.00	.35		.00	1.00	.42		.00	1.00	.26		.00	1.00
Education woman																
Low	.50		.00	1.00	.37		.00	1.00	.22		.00	1.00	.50		.00	1.00
Intermediate	.29		.00	1.00	.34		.00	1.00	.38		.00	1.00	.33		.00	1.00
High	.21		.00	1.00	.29		.00	1.00	.40		.00	1.00	.17		.00	1.00
Education man's father																
Low	.81		.00	1.00	.72		.00	1.00	.79		.00	1.00	.80		.00	1.00
Intermediate	.16		.00	1.00	.23		.00	1.00	.14		.00	1.00	.17		.00	1.00
High	.04		.00	1.00	.05		.00	1.00	.07		.00	1.00	.03		.00	1.00
Education man's mother																
Low	.92		.00	1.00	.85		.00	1.00	.85		.00	1.00	.92		.00	1.00
Intermediate	.07		.00	1.00	.12		.00	1.00	.13		.00	1.00	.07		.00	1.00
High	.00		.00	1.00	.03		.00	1.00	.02		.00	1.00	.01		.00	1.00
Education woman's father																
Low	.72		.00	1.00	.72		.00	1.00	.72		.00	1.00	.80		.00	1.00
Intermediate	.21		.00	1.00	.26		.00	1.00	.21		.00	1.00	.20		.00	1.00
High	.07		.00	1.00	.02		.00	1.00	.07		.00	1.00	.01		.00	1.00
Education woman's mother																
Low	.90		.00	1.00	.89		.00	1.00	.84		.00	1.00	.92		.00	1.00
Intermediate	.08		.00	1.00	.11		.00	1.00	.13		.00	1.00	.08		.00	1.00
High	.02		.00	1.00	.00		.00	1.00	.03		.00	1.00	.00		.00	1.00

Table A6, continued

	(5) Stable 1.0 MBW, early marriage				(6) Low work intensity, early marriage				(7) Fem. full-timer, late marriage, early marriage				(8) Fem. part-timer/homem., late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Region type																
Rural	.40		.00	1.00	.40		.00	1.00	.41		.00	1.00	.46		.00	1.00
Urban	.60		.00	1.00	.60		.00	1.00	.59		.00	1.00	.54		.00	1.00
N	246				124				145				171			

Note: Personal net wealth in thousand EUR. Due to data limitations in the UKHLS, we report the proportion of male and female parents instead of the number of children. The birth cohort of men born after 1962 is not depicted because they are imputed due incomplete dyadic employment biographies.

Source: UKHLS (2016-2018); weighted, multiply imputed.

Table A7 Descriptive statistics for individuals by dyadic breadwinning clusters in Germany

	(1) Stable 2.0 BW, early marriage				(2) Unstable 2.0 BW, early marriage				(3) Stable 1.5 MBW, early marriage				(4) Unstable 1.5 MBW, early marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Personal net wealth man (in EUR 1,000)	174	168	-152	892	136	146	0.00	733	177	184	-275	1428	152	172	0.00	1044
Personal net wealth woman (in EUR 1,000)	165	198	-111	1402	120	122	0.00	656	143	143	-133	1112	117	149	-35	885
Mean proportion of gender wealth gap of couple's total net worth	0.05		.00	1.00	0.04		.00	1.00	0.05		.00	1.00	0.11		.00	1.00
Median proportion of gender wealth gap of couple's total net worth	0.01		.00	1.00	0.02		.00	1.00	0.03		.00	1.00	0.03		.00	1.00
Age man	70.24	7.95	55.00	93.00	69.01	7.52	55.00	92.00	68.37	7.46	55.00	89.00	68.52	9.48	55.00	91.00
Age woman	67.49	7.57	55.00	88.00	66.33	7.70	55.00	89.00	65.58	7.13	55.00	83.00	65.62	8.33	55.00	86.00
Birth cohort man																
<1943	.34		.00	1.00	.20		.00	1.00	.24		.00	1.00	.29		.00	1.00
1943-1952	.40		.00	1.00	.51		.00	1.00	.43		.00	1.00	.26		.00	1.00
1953-1962	.26		.00	1.00	.29		.00	1.00	.33		.00	1.00	.45		.00	1.00
Birth cohort woman																
<1943	.20		.00	1.00	.12		.00	1.00	.14		.00	1.00	.18		.00	1.00
1943-1952	.41		.00	1.00	.38		.00	1.00	.39		.00	1.00	.32		.00	1.00
1953-1962	.39		.00	1.00	.51		.00	1.00	.47		.00	1.00	.50		.00	1.00
Age at marriage man	28.30	5.51	19.00	56.00	25.43	3.12	19.00	35.00	26.55	3.61	21.00	40.00	27.93	6.19	19.00	56.00
Age at marriage woman	25.54	5.16	16.00	43.00	22.75	2.60	17.00	27.00	23.76	3.03	17.00	34.00	25.03	5.15	17.00	44.00
Number of children man	1.19	1.12	0.00	4.00	1.72	0.92	0.00	4.00	1.89	0.94	0.00	5.00	1.69	1.06	0.00	5.00
Number of children woman	1.36	1.09	0.00	5.00	1.96	0.72	0.00	4.00	2.02	0.86	0.00	5.00	1.85	0.97	0.00	5.00
Education man																
Low	.51		.00	1.00	.50		.00	1.00	.47		.00	1.00	.55		.00	1.00
Intermediate	.20		.00	1.00	.25		.00	1.00	.19		.00	1.00	.22		.00	1.00
High	.30		.00	1.00	.24		.00	1.00	.33		.00	1.00	.24		.00	1.00
Education woman																
Low	.42		.00	1.00	.51		.00	1.00	.48		.00	1.00	.49		.00	1.00
Intermediate	.27		.00	1.00	.26		.00	1.00	.34		.00	1.00	.34		.00	1.00
High	.30		.00	1.00	.23		.00	1.00	.18		.00	1.00	.17		.00	1.00

Table A7, continued

	(1) Stable 2.0 BW, early marriage				(2) Unstable 2.0 BW, early marriage				(3) Stable 1.5 MBW, early marriage				(4) Unstable 1.5 MBW, early marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Education man's father																
Low	.83		.00	1.00	.79		.00	1.00	.76		.00	1.00	.84		.00	1.00
Intermediate	.09		.00	1.00	.13		.00	1.00	.12		.00	1.00	.06		.00	1.00
High	.08		.00	1.00	.07		.00	1.00	.12		.00	1.00	.10		.00	1.00
Education man's mother																
Low	.87		.00	1.00	.81		.00	1.00	.82		.00	1.00	.85		.00	1.00
Intermediate	.10		.00	1.00	.16		.00	1.00	.15		.00	1.00	.13		.00	1.00
High	.03		.00	1.00	.03		.00	1.00	.03		.00	1.00	.02		.00	1.00
Education woman's father																
Low	.76		.00	1.00	.82		.00	1.00	.78		.00	1.00	.77		.00	1.00
Intermediate	.11		.00	1.00	.08		.00	1.00	.11		.00	1.00	.14		.00	1.00
High	.13		.00	1.00	.10		.00	1.00	.11		.00	1.00	.09		.00	1.00
Education woman's mother																
Low	.79		.00	1.00	.84		.00	1.00	.85		.00	1.00	.82		.00	1.00
Intermediate	.15		.00	1.00	.10		.00	1.00	.12		.00	1.00	.15		.00	1.00
High	.07		.00	1.00	.06		.00	1.00	.03		.00	1.00	.03		.00	1.00
Region type																
Rural	.28		.00	1.00	.22		.00	1.00	.34		.00	1.00	.30		.00	1.00
Urban	.72		.00	1.00	.79		.00	1.00	.66		.00	1.00	.70		.00	1.00
Personal inheritances man	22	97	0.00	780	9	29	0.00	175	23	111	0.00	1520	43	133	0.00	1004
Personal inheritances woman	17	68	0.00	620	15	48	0.00	300	21	81	0.00	1000	43	139	0.00	1000
Number of siblings man	1.92	1.77	0.00	11.00	2.48	2.16	0.00	14.00	2.08	1.76	0.00	14.00	2.13	2.06	0.00	10.00
Number of siblings woman	1.94	1.67	0.00	8.00	2.10	1.78	0.00	12.00	2.14	1.69	0.00	9.00	2.19	1.68	0.00	8.00
Father birth year man	1915.40	10.06	1889	1938	1916.85	10.95	1891	1936	1916.68	10.16	1890	1939	1916.89	11.94	1887	1940
Mother birth year man	1918.43	9.62	1897	1941	1920.00	10.20	1895	1938	1919.96	9.83	1891	1941	1920.20	11.19	1890	1939
Father birth year woman	1917.92	10.72	1885	1944	1919.59	10.89	1892	1937	1919.57	10.89	1881	1944	1919.79	11.07	1889	1942
Mother birth year woman	1921.30	9.92	1897	1944	1922.59	9.38	1901	1938	1923.15	9.43	1897	1942	1923.17	10.24	1898	1943
N	142				192				196				169			

Table A7, continued

	(5) 1.0 to 1.5 MBW, early marriage				(6) Stable 1.0 MBW, early marriage				(7) Fem. diverse employment, late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Personal net wealth man (in EUR 1,000)	194	163	-19	984	183	219	-226	1428	198	229	-4	1428
Personal net wealth woman (in EUR 1,000)	154	141	0.00	942	127	148	-71	1386	144	158	-19	926
Mean proportion of gender wealth gap of couple's total net worth	0.10		.00	1.00	0.12		.00	1.00	0.18		.00	1.00
Median proportion of gender wealth gap of couple's total net worth	0.04		.00	1.00	0.03		.00	1.00	0.03		.00	1.00
Age man	69.07	8.27	55.00	95.00	73.33	8.40	55.00	94.00	66.14	7.50	55.00	89.00
Age woman	66.38	7.93	55.00	89.00	70.90	8.12	55.00	92.00	62.81	7.43	55.00	92.00
Birth cohort man												
<1943	.29		.00	1.00	.49		.00	1.00	.13		.00	1.00
1943-1952	.37		.00	1.00	.35		.00	1.00	.40		.00	1.00
1953-1962	.35		.00	1.00	.16		.00	1.00	.47		.00	1.00
Birth cohort woman												
<1943	.20		.00	1.00	.40		.00	1.00	.08		.00	1.00
1943-1952	.35		.00	1.00	.35		.00	1.00	.25		.00	1.00
1953-1962	.45		.00	1.00	.25		.00	1.00	.67		.00	1.00
Age at marriage man	28.18	4.15	20.00	44.00	27.50	4.40	20.00	45.00	51.58	14.46	28.00	79.00
Age at marriage woman	25.50	4.06	19.00	42.00	25.06	4.31	18.00	45.00	48.25	13.20	19.00	75.00
Number of children man	2.02	0.95	0.00	5.00	1.93	1.19	0.00	6.00	1.58	1.30	0.00	6.00
Number of children woman	2.25	0.80	0.00	5.00	2.22	1.07	0.00	7.00	1.56	1.26	0.00	6.00

Table A7, continued

	(5) 1.0 to 1.5 MBW, early marriage				(6) Stable 1.0 MBW, early marriage				(7) Fem. diverse employment, late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Education man												
Low	.42		.00	1.00	.45		.00	1.00	.35		.00	1.00
Intermediate	.18		.00	1.00	.22		.00	1.00	.21		.00	1.00
High	.39		.00	1.00	.33		.00	1.00	.44		.00	1.00
Education woman												
Low	.47		.00	1.00	.57		.00	1.00	.35		.00	1.00
Intermediate	.27		.00	1.00	.29		.00	1.00	.33		.00	1.00
High	.26		.00	1.00	.15		.00	1.00	.31		.00	1.00
Education man's father												
Low	.84		.00	1.00	.72		.00	1.00	.75		.00	1.00
Intermediate	.10		.00	1.00	.16		.00	1.00	.12		.00	1.00
High	.06		.00	1.00	.12		.00	1.00	.12		.00	1.00
Education man's mother												
Low	.83		.00	1.00	.82		.00	1.00	.82		.00	1.00
Intermediate	.14		.00	1.00	.13		.00	1.00	.13		.00	1.00
High	.02		.00	1.00	.05		.00	1.00	.05		.00	1.00
Education woman's father												
Low	.72		.00	1.00	.79		.00	1.00	.76		.00	1.00
Intermediate	.15		.00	1.00	.08		.00	1.00	.14		.00	1.00
High	.13		.00	1.00	.13		.00	1.00	.10		.00	1.00
Education woman's mother												
Low	.85		.00	1.00	.81		.00	1.00	.79		.00	1.00
Intermediate	.12		.00	1.00	.15		.00	1.00	.14		.00	1.00
High	.03		.00	1.00	.04		.00	1.00	.07		.00	1.00

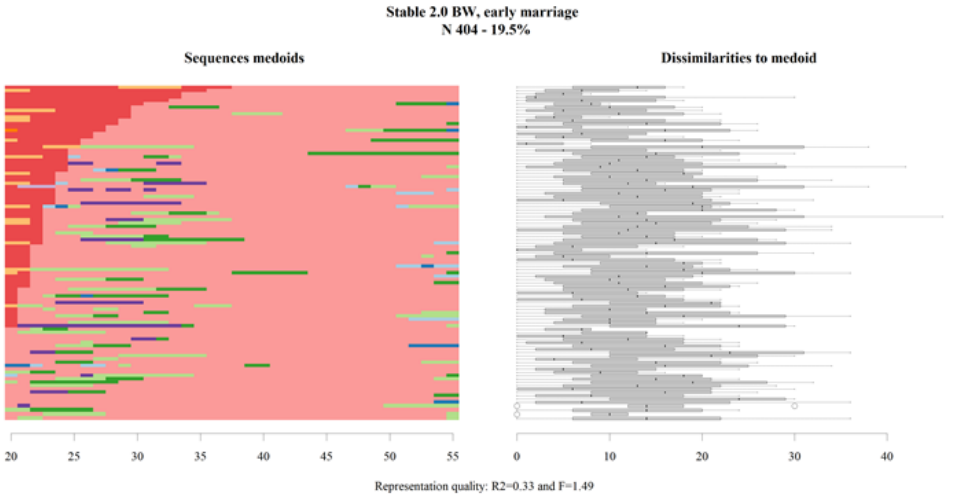
Table A7, continued

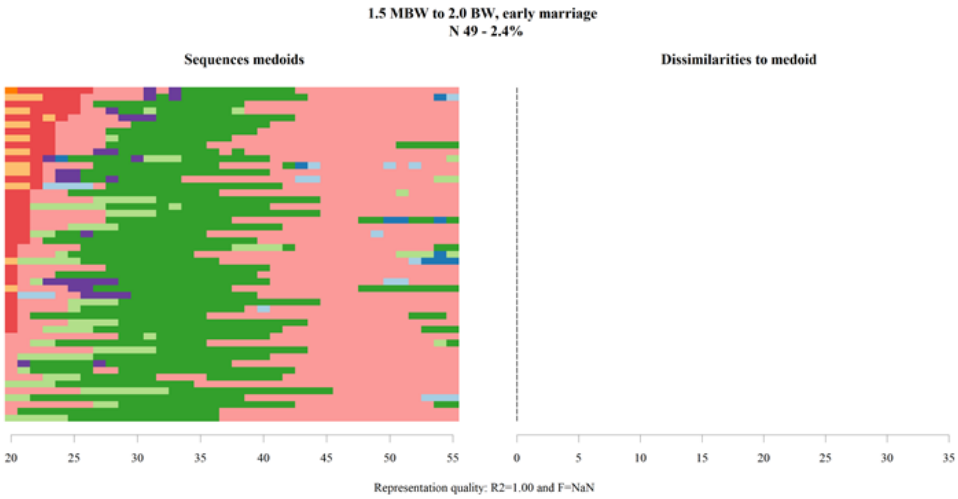
	(5) 1.0 to 1.5 MBW, early marriage				(6) Stable 1.0 MBW, early marriage				(7) Fem. diverse employment, late marriage			
	M / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max	*M* / Prop.	*SD*	Min	Max
Region type												
Rural	.26		.00	1.00	.25		.00	1.00	.28		.00	1.00
Urban	.74		.00	1.00	.75		.00	1.00	.72		.00	1.00
Personal inheritances man	26	93	0.00	850	45	349	0.00	6000	31	86	0.00	480
Personal inheritances woman	22	61	0.00	420	21	78	0.00	700	27	74	0.00	500
Number of siblings man	2.20	1.70	0.00	7.00	2.08	1.70	0.00	9.00	2.14	1.86	0.00	10.00
Number of siblings woman	2.27	1.78	0.00	13.00	2.17	1.77	0.00	10.00	2.04	1.88	0.00	9.00
Father birth year man	1914.74	11.22	1884	1941	1911.10	10.74	1861	1936	1919.79	11.20	1878	1940
Mother birth year man	1918.67	10.43	1890	1943	1914.53	10.12	1889	1941	1923.28	10.35	1889	1942
Father birth year woman	1917.75	10.59	1888	1937	1913.76	11.05	1885	1943	1922.09	10.75	1892	1942
Mother birth year woman	1921.85	10.11	1894	1940	1917.27	10.44	1892	1942	1925.00	9.88	1892	1944
N	220				327				97			

Note: Personal net wealth and inheritances in thousand EUR. The birth cohort of men born after 1962 is not depicted because they are imputed due incomplete dyadic employment biographies.

Source: SOEP (2017); weighted, multiply imputed.

Figure A5 Relative frequency sequence plots: medoids, dissimilarity to medoid, and goodness of fit in Britain





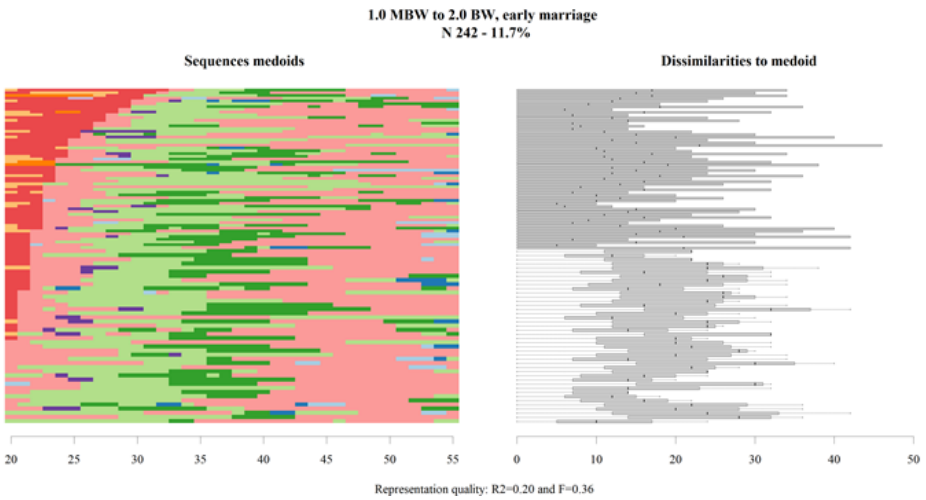
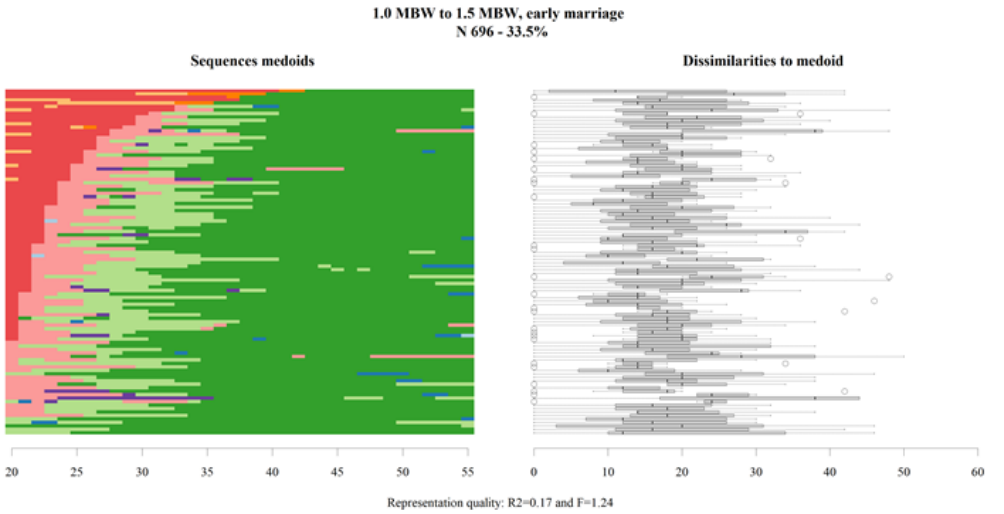
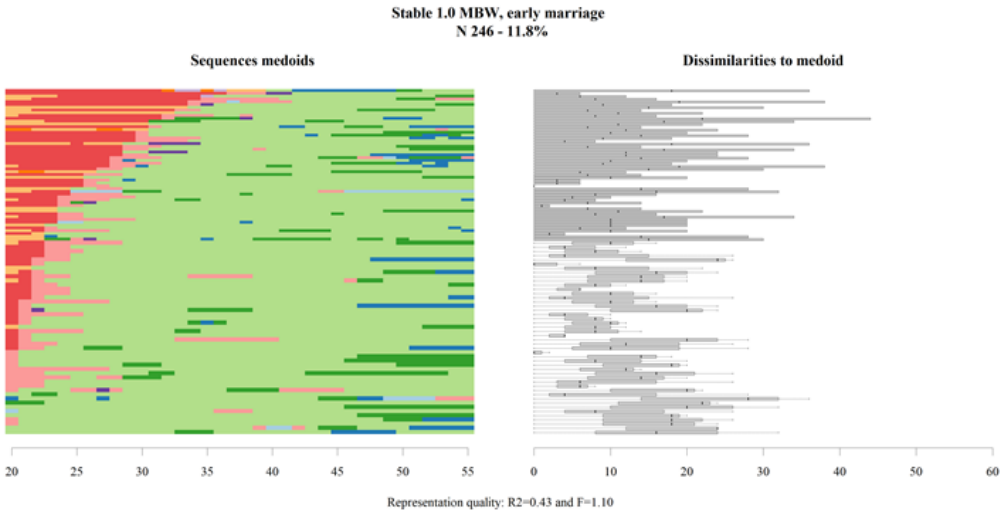


Figure A5, continued





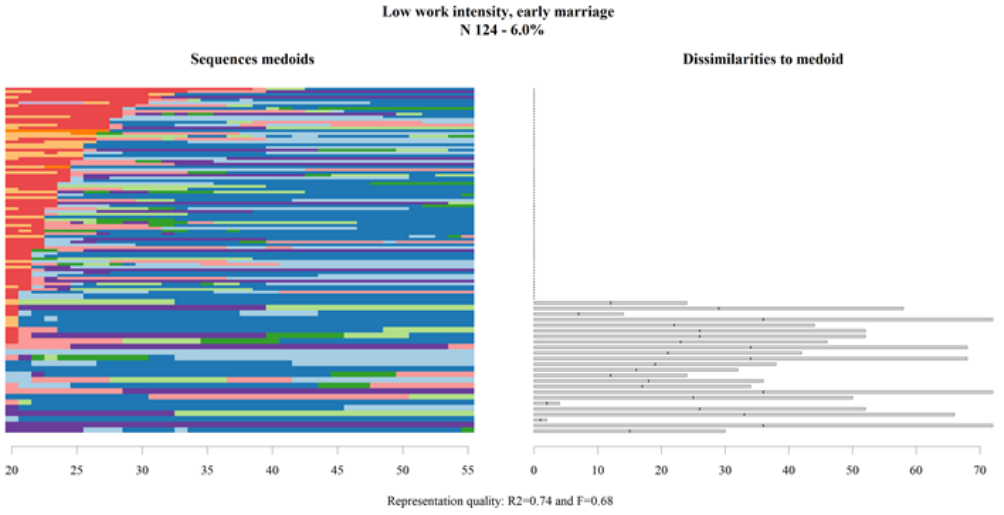
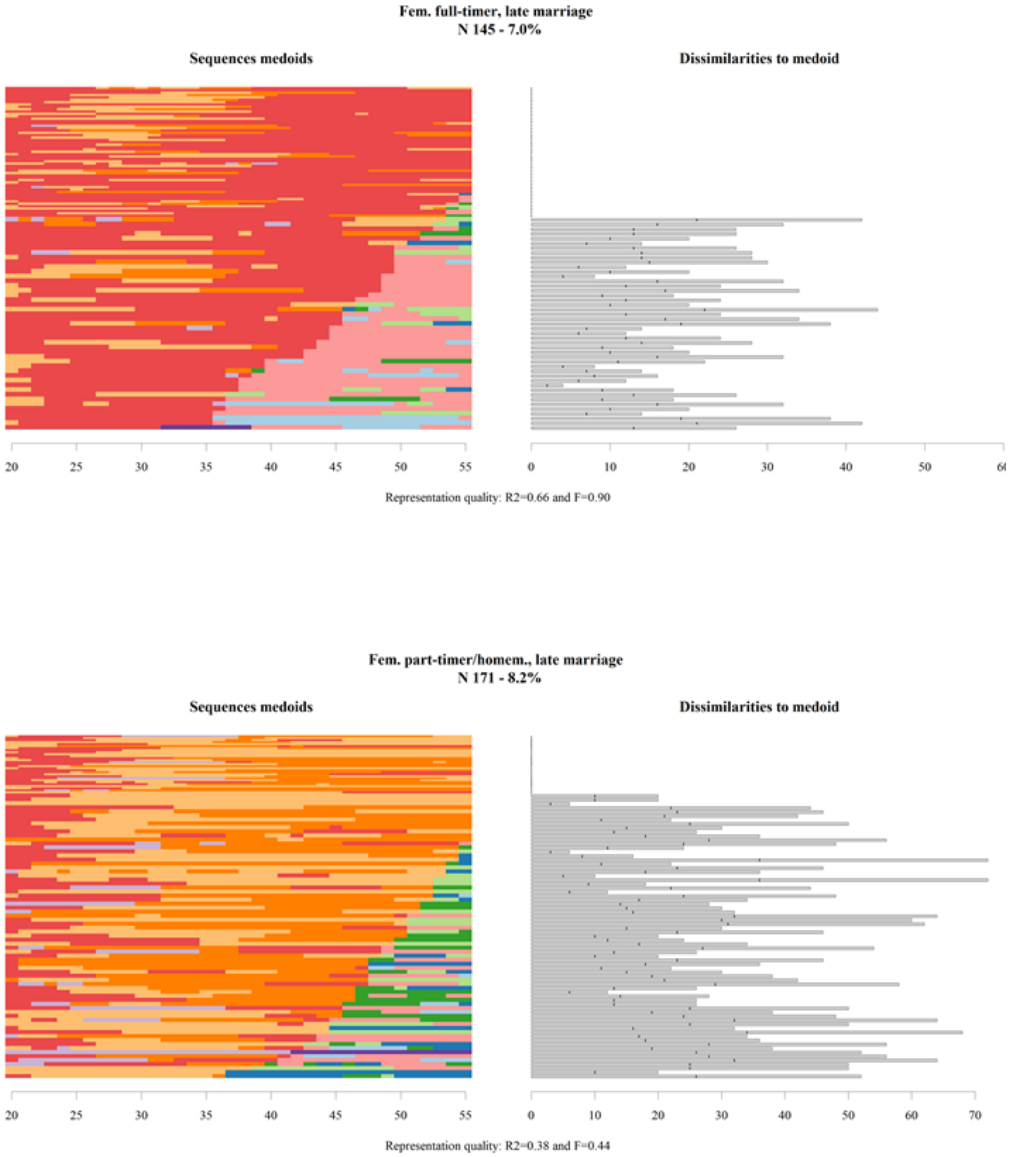
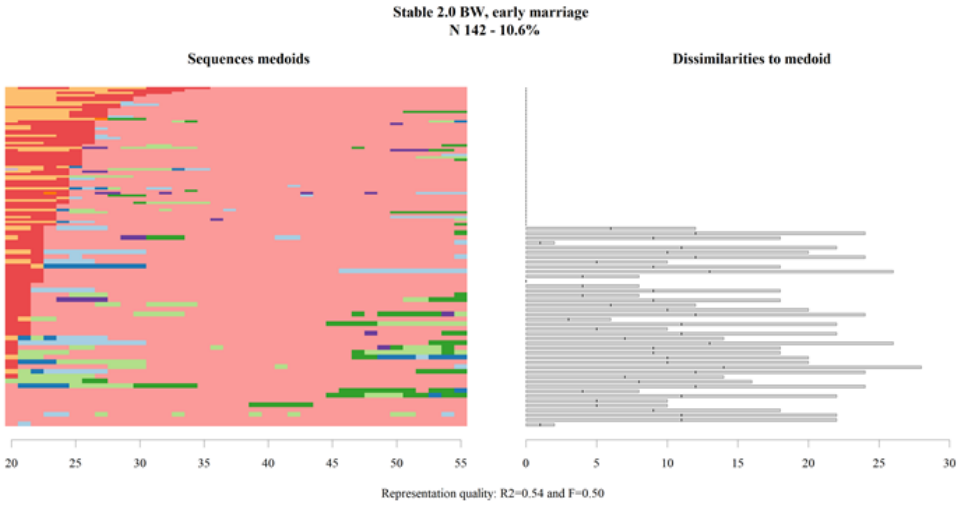


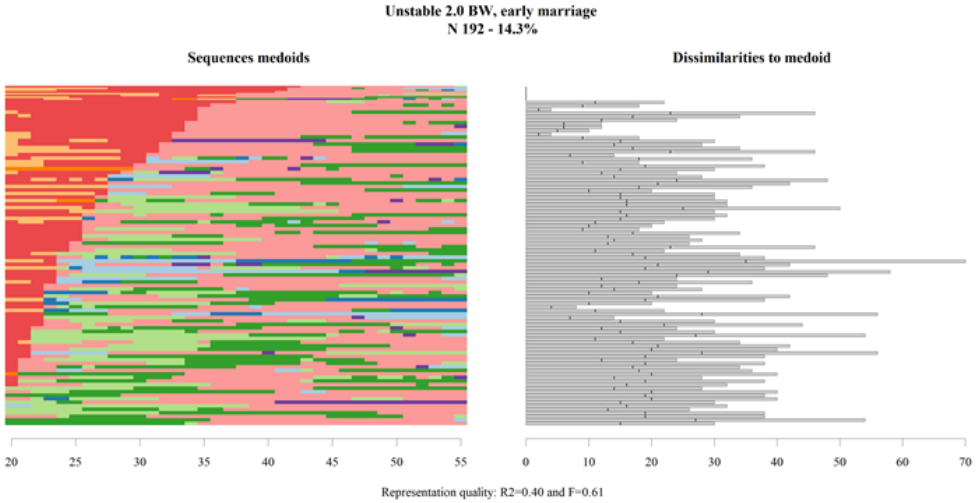
Figure A5, continued



Source: UKHLS (2016-2018); weighted, non-imputed.

Figure A6 Relative frequency sequence plots: medoids, dissimilarity to medoid, and goodness of fit in Western Germany





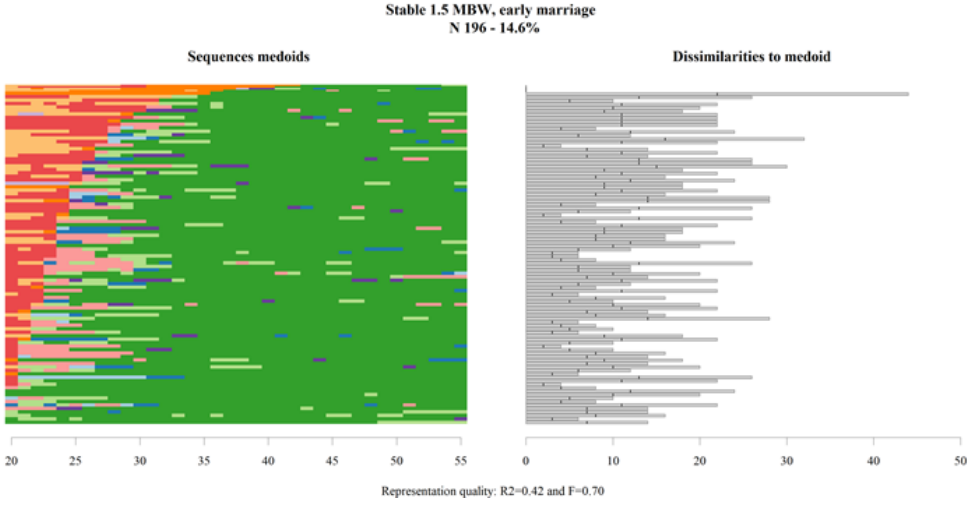
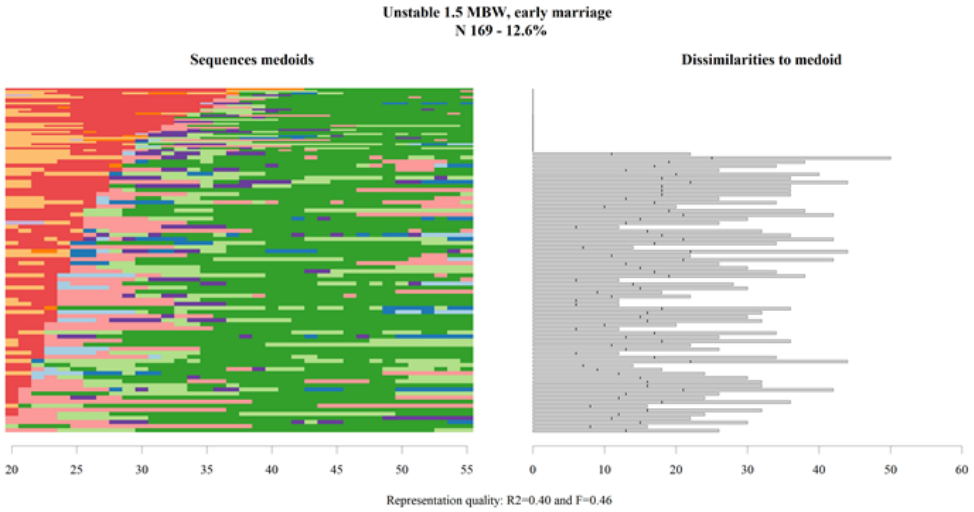
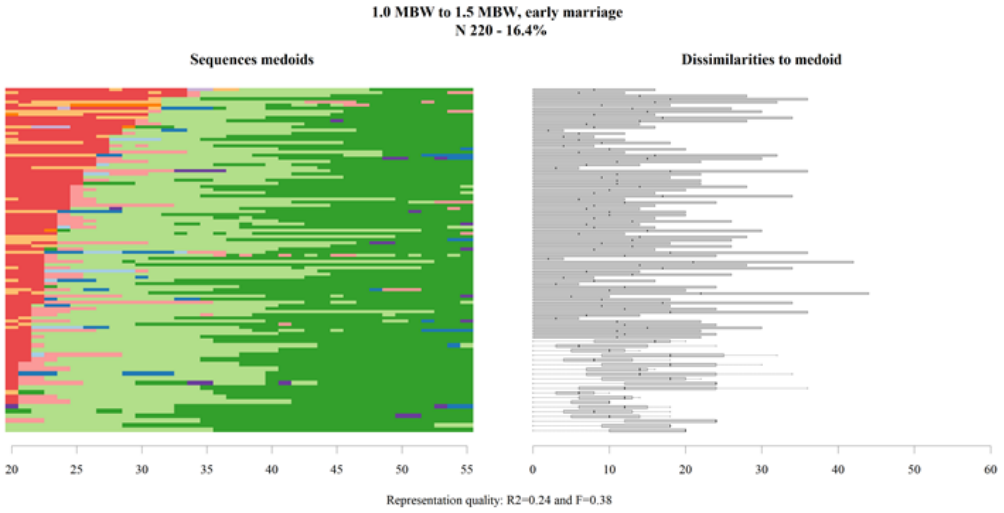


Figure A6, continued





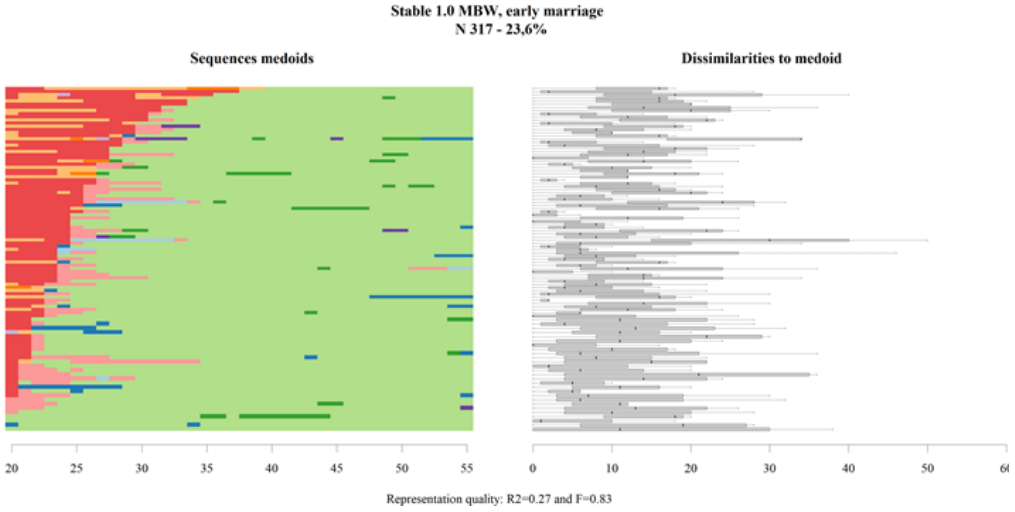
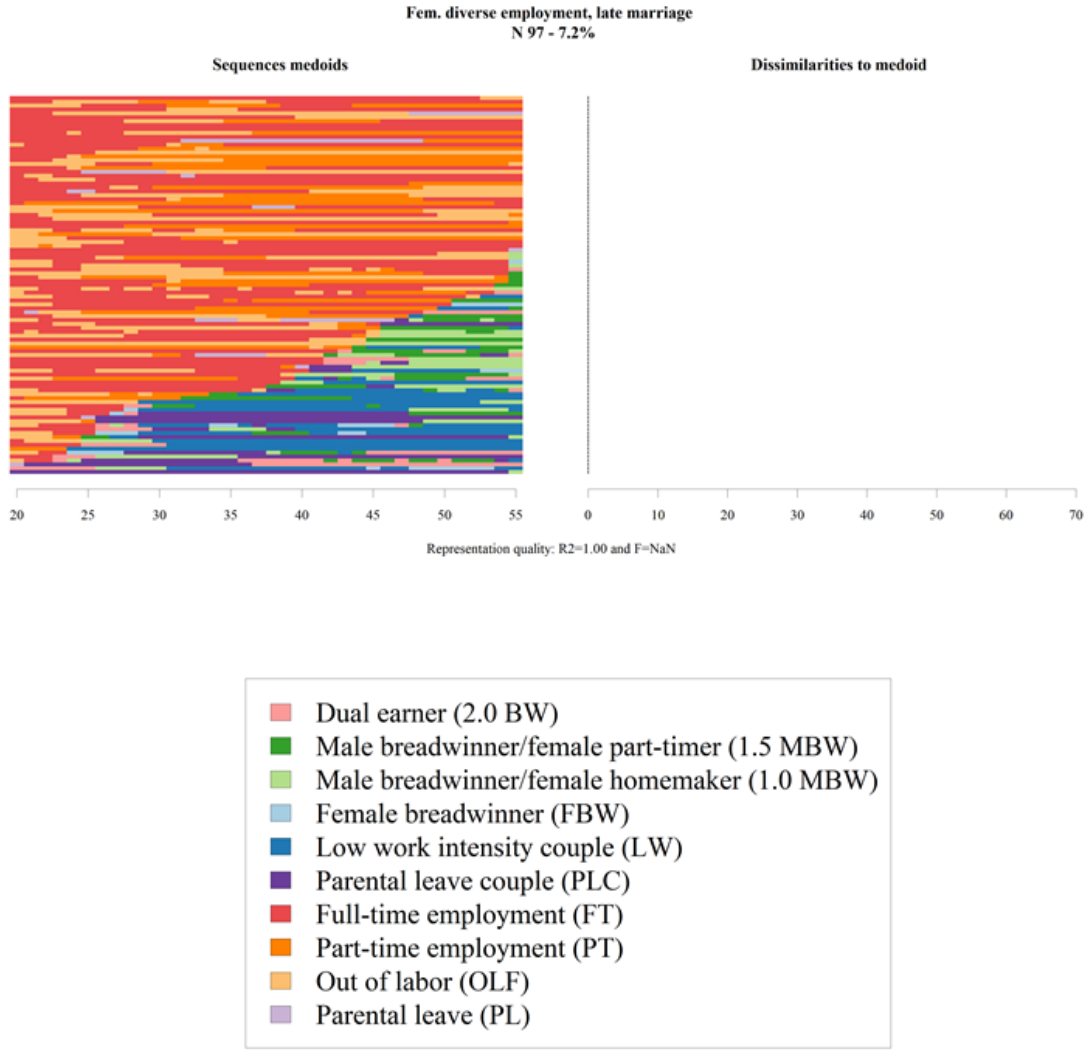


Figure A6, continued



Source: SOEP (2017); weighted, non-imputed.

Notes

A medoid is an observed sequence which is the least distant from the others (Aasve et al., 2007).

Dissimilarities to medoid plot shows the dispersion of the medoid sequence within each frequency group, displaying mean and dispersion around mean. R2 and F test helps to evaluate goodness of fit of the chosen representation.

Please note that a medoid can be chosen for frequency groups having at least three sequences. In case of sample lower than 100 sequences, the plot displays the entire sample (this is the case in cluster 2 in Britain and cluster 9 in Western Germany).

For a detailed overview of relative frequency sequence plots, see Fasang and Liao (2014).

Table A8 Couples' mean and median housing and financial wealth and proportion owned by women across dyadic employment clusters in Britain (N = 2649) and Western Germany (N = 1378)

Britain				Western Germany			
Dyadic employment cluster	Mean	Median	Prop. owned by women	Dyadic employment cluster	Mean	Median	Prop. owned by women
Housing wealth (net)							
Stable 2.0 BW, early marriage	270	220	0.51	Stable 2.0 BW, early marriage	221	203	0.52
1.5 MBW to 2.0 BW, early marriage	255	200	0.50	Unstable 2.0 BW, early marriage	176	165	0.53
1.0 MBW to 2.0 BW, early marriage	281	200	0.50	Stable 1.5 MBW, early marriage	226	203	0.50
1.0 to 1.5 MBW, early marriage	290	250	0.49	Unstable 1.5 MBW, early marriage	192	178	0.49
Stable 1.0 MBW, early marriage	298	238	0.51	1.0 to 1.5 MBW, early marriage	235	216	0.50
Low work intensity, early marriage	259	204	0.48	Stable 1.0 MBW, early marriage	220	185	0.49
Fem. full-timer, late marriage	234	200	0.51	Fem. diverse employment, late marriage	230	185	0.52
Fem. part-timer/homem., late marriage	175	160	0.46				
All	264	201	0.49	All	220	194	0.50
Financial wealth (net)							
Stable 2.0 BW, early marriage	96	21	0.29	Stable 2.0 BW, early marriage	50	19	0.44
1.5 MBW to 2.0 BW, early marriage	108	26	0.35	Unstable 2.0 BW, early marriage	30	12	0.40
1.0 MBW to 2.0 BW, early marriage	92	20	0.27	Stable 1.5 MBW, early marriage	45	21	0.42
1.0 to 1.5 MBW, early marriage	99	s29	0.29	Unstable 1.5 MBW, early marriage	33	16	0.41
Stable 1.0 MBW, early marriage	106	21	0.25	1.0 to 1.5 MBW, early marriage	47	23	0.39
Low work intensity, early marriage	87	15	0.25	Stable 1.0 MBW, early marriage	39	16	0.35

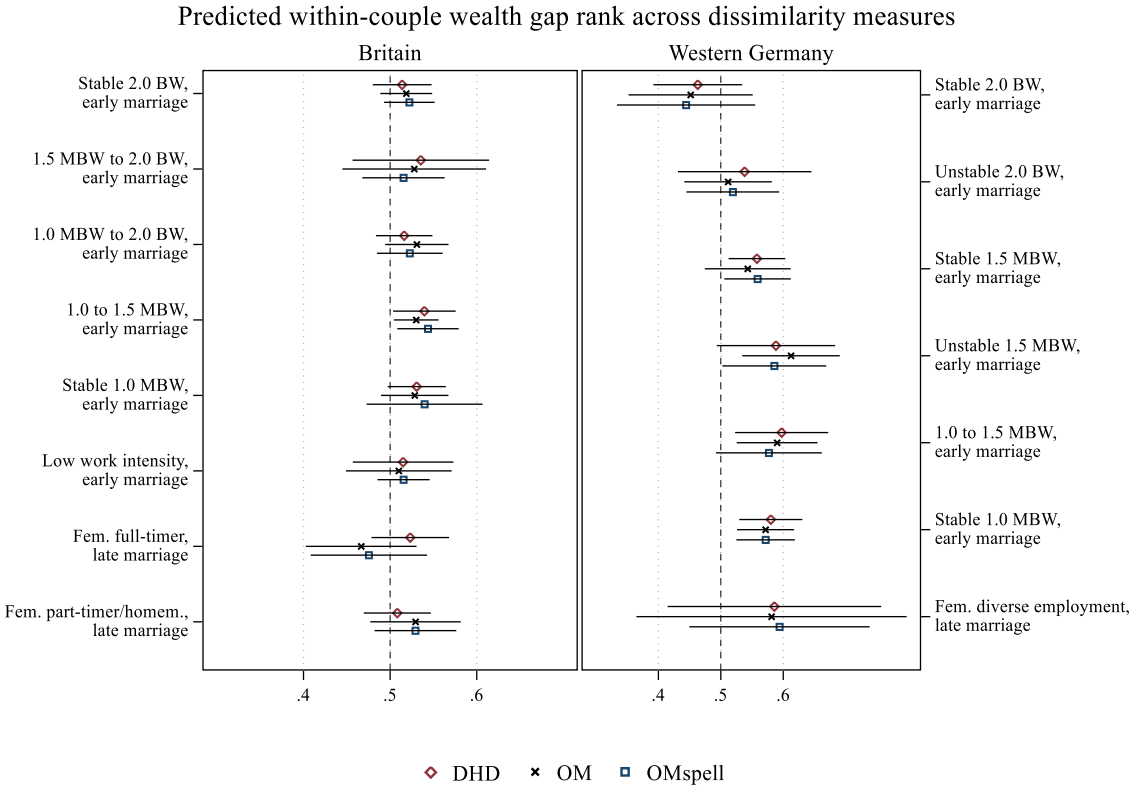
Table A8, continued

Britain				Western Germany			
Dyadic employment cluster	Mean	Median	Prop. owned by women	Dyadic employment cluster	Mean	Median	Prop. owned by women
Fem. full-timer, late marriage	98	15	0.35	Fem. diverse employment, late marriage	46	20	0.29
Fem. part-timer/ homem., late marriage	38	0	0.29				
All	86	19	0.29	All	43	18	0.39

Note: Raw, in thousand EUR. Proportion owned by women refers to the mean. (M)BW = (male) breadwinner, fem. = female, homem. = homemaker.
Source: UKHLS (2016-2018) and SOEP (2017); weighted, multiply imputed.

Regression analyses

Figure S1 Multivariable OLS regression models of employment clusters on the rank-transformed gender wealth gap in later life for couples in Britain (N = 2649) and Western Germany (N = 1378) across dissimilarity measures (DHD, OM, OMspell)



Note: Whiskers indicate 95% confidence intervals. Dashed lines indicate the middle of the rank gap distribution. The models also control for household net worth, both partners' age, education, parental education, region type. (M)BW = (male) breadwinner, fem. = female, homem. = homemaker.
Source: UKHLS (2016-2018) and SOEP (2017); weighted, multiply imputed.

Table A9 OLS regression of employment clusters on rank-transformed gender wealth gap in Britain (N = 2649)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
1.5 MBW to 2.0 BW, early marriage	0.01	0.05
1.0 MBW to 2.0 BW, early marriage	0.01	0.02
1.0 to 1.5 MBW, early marriage	0.01	0.02
Stable 1.0 MBW, early marriage	0.00	0.02
Low work intensity, early marriage	-0.01	0.03
Female full-timer, late marriage	-0.05	0.04
Female part-timer/homemaker, late marriage	0.00	0.03
Household net worth 2017 (rank-transformed)	0.01	0.01
Man's age	-0.01	0.02
Man's age squared	0.00	0.00
Woman's age	0.00	0.02
Woman's age squared	-0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	0.05	0.03
1953-1962	0.07	0.06
>1962	0.07	0.11
Woman's birth cohort (ref. <1943)		
1943-1952	0.03	0.03
1953-1962	0.05	0.05
Man's father education (ref. low)		
Intermediate education	0.03	0.02
High education	0.05	0.04
Man's mother education (ref. low)		
Intermediate education	-0.04	0.03
High education	-0.01	0.09
Man's education (ref. low)		
Intermediate education	-0.02	0.02
High education	0.00	0.02
Woman's father education (ref. low)		
Intermediate education	-0.05*	0.02
High education	-0.11**	0.03

Table A9, continued		
Woman's mother education (ref. low)		
Intermediate education	-0.01	0.03
High education	0.05	0.06
Woman's education (ref. low)		
Intermediate education	-0.01	0.02
High education	-0.02	0.02
Region type (ref. rural)		
Urban	-0.01	0.01
Constant	0.38	0.84

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: UKHLS (2016-2018); weighted, multiply imputed.

Table A10 OLS regression of employment clusters on rank-transformed gender wealth gap in Germany (N = 1378)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
Unstable 2.0 BW, early marriage	0.07	0.05
Stable 1.5 MBW, early marriage	0.10+	0.05
Unstable 1.5 MBW, early marriage	0.14*	0.06
1.0 to 1.5 MBW, early marriage	0.14**	0.05
Stable 1.0 MBW, early marriage	0.13*	0.05
Female diverse employment, late marriage	0.12*	0.06
Household net worth 2017 (rank-transformed)	0.07*	0.03
Man's age	0.04	0.03
Man's age squared	-0.04	0.04
Woman's age	-0.00	0.00
Woman's age squared	0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	-0.03	0.05
1953-1962	0.02	0.09
>1962	0.00	0.16
Woman's birth cohort (ref. <1943)		
1943-1952	0.05	0.05
1953-1962	0.03	0.09
Man's father education (ref. low)		
Intermediate education	0.02	0.05
High education	-0.00	0.05
Man's mother education (ref. low)		
Intermediate education	0.03	0.06
High education	0.02	0.08
Man's education (ref. low)		
Intermediate education	0.02	0.03
High education	0.08*	0.03
Woman's father education (ref. low)		
Intermediate education	-0.05	0.06
High education	-0.04	0.05

Table A10, continued		
Woman's mother education (ref. low)		
Intermediate education	0.07	0.06
High education	0.02	0.08
Woman's education (ref. low)		
Intermediate education	-0.00	0.03
High education	-0.04	0.05
Region type (ref. rural)		
Urban	0.01	0.03
Constant	0.49	1.35

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: SOEP (2017); weighted, multiply imputed.

Table S1 OLS regression of employment clusters on IHS-transformed gender wealth gap in Britain (N = 2649)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
1.5 MBW to 2.0 BW, early marriage	0.81	1.49
1.0 MBW to 2.0 BW, early marriage	0.36	0.75
1.0 to 1.5 MBW, early marriage	0.58	0.58
Stable 1.0 MBW, early marriage	0.37	0.81
Low work intensity, early marriage	-0.02	0.97
Female full-timer, late marriage	-1.36	0.90
Female part-timer/homemaker, late marriage	0.18	0.87
Household gross worth 2017 (IHS-transformed)	0.07*	0.03
Man's age	0.21	0.66
Man's age squared	-0.00	0.00
Woman's age	-0.11	0.68
Woman's age squared	0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	0.87	0.84
1953-1962	1.09	1.46
>1962	1.28	2.94
Woman's birth cohort (ref. <1943)		
1943-1952	0.79	0.91
1953-1962	1.07	1.42
Man's father education (ref. low)		
Intermediate education	0.94	0.62
High education	1.75	1.31
Man's mother education (ref. low)		
Intermediate education	-0.21	0.82
High education	-0.81	2.49
Man's education (ref. low)		
Intermediate education	-0.46	0.53
High education	0.01	0.58
Woman's father education (ref. low)		
Intermediate education	-1.04+	0.57
High education	-2.30+	1.20

Table S1, continued		
Woman's mother education (ref. low)		
Intermediate education	-0.58	0.76
High education	1.49	1.79
Woman's education (ref. low)		
Intermediate education	-0.37	0.54
High education	-0.47	0.62
Region type (ref. rural)		
Urban	-0.33	0.46
Constant	-8.76	25.73

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: UKHLS (2016-2018); weighted, multiply imputed.

Table S2 OLS regression of employment clusters on IHS-transformed gender wealth gap in Germany (N = 1378)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
Unstable 2.0 BW, early marriage	1.30	1.69
Stable 1.5 MBW, early marriage	1.54	1.58
Unstable 1.5 MBW, early marriage	2.53	1.64
1.0 to 1.5 MBW, early marriage	2.67	1.76
Stable 1.0 MBW, early marriage	2.57	1.92
Female diverse employment, late marriage	0.80	1.92
Household net worth 2017 (IHS-transformed)	0.00	0.06
Man's age	0.75	2.00
Man's age squared	-1.14	1.60
Woman's age	-0.01	0.01
Woman's age squared	0.01	0.01
Man's birth cohort (ref. <1943)		
1943-1952	-1.02	1.75
1953-1962	0.09	2.91
>1962	0.39	6.42
Woman's birth cohort (ref. <1943)		
1943-1952	-0.25	1.62
1953-1962	-1.96	2.82
Man's father education (ref. low)		
Intermediate education	0.60	1.59
High education	0.64	1.45
Man's mother education (ref. low)		
Intermediate education	0.92	1.22
High education	-1.56	2.04
Man's education (ref. low)		
Intermediate education	0.56	1.05
High education	1.81	1.21
Woman's father education (ref. low)		
Intermediate education	-0.66	1.85
High education	-1.91	1.59

Table S2, continued		
Woman's mother education (ref. low)		
Intermediate education	1.95+	1.14
High education	0.56	2.49
Woman's education (ref. low)		
Intermediate education	-0.06	1.18
High education	-0.55	1.30
Region type (ref. rural)		
Urban	0.24	0.83
Constant	20.90	43.31

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: SOEP (2017); weighted, multiply imputed.

Table S3 OLS regression of employment clusters on rank-transformed gross gender wealth gap in Britain (N = 2649)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
1.5 MBW to 2.0 BW, early marriage	0.02	0.05
1.0 MBW to 2.0 BW, early marriage	0.03	0.03
1.0 to 1.5 MBW, early marriage	0.02	0.02
Stable 1.0 MBW, early marriage	0.02	0.03
Low work intensity, early marriage	-0.02	0.04
Female full-timer, late marriage	-0.01	0.03
Female part-timer/homemaker, late marriage	0.05	0.04
Household gross worth 2017 (rank-transformed)	-0.01	0.02
Man's age	-0.00	0.02
Man's age squared	0.00	0.00
Woman's age	-0.02	0.02
Woman's age squared	0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	0.03	0.03
1953-1962	0.05	0.05
>1962	0.06	0.10
Woman's birth cohort (ref. <1943)		
1943-1952	0.05	0.03
1953-1962	0.04	0.05
Man's father education (ref. low)		
Intermediate education	0.03	0.02
High education	0.03	0.06
Man's mother education (ref. low)		
Intermediate education	-0.06+	0.03
High education	-0.03	0.07
Man's education (ref. low)		
Intermediate education	0.01	0.02
High education	0.02	0.03
Woman's father education (ref. low)		
Intermediate education	-0.07**	0.02
High education	-0.13**	0.04

Table S3, continued		
Woman's mother education (ref. low)		
Intermediate education	0.00	0.03
High education	0.03	0.07
Woman's education (ref. low)		
Intermediate education	-0.02	0.02
High education	-0.03	0.02
Region type (ref. rural)		
Urban	-0.00	0.02
Constant	1.20	0.81

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: UKHLS (2016-2018); weighted, multiply imputed.

Table S4 OLS regression of employment clusters on rank-transformed gross gender wealth gap in Germany (N = 1378)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
Unstable 2.0 BW, early marriage	0.04	0.05
Stable 1.5 MBW, early marriage	0.06	0.05
Unstable 1.5 MBW, early marriage	0.10*	0.05
1.0 to 1.5 MBW, early marriage	0.10*	0.05
Stable 1.0 MBW, early marriage	0.09*	0.04
Female diverse employment, late marriage	0.05	0.07
Household gross worth 2017 (rank-transformed)	0.06*	0.03
Man's age	0.05	0.03
Man's age squared	-0.07*	0.03
Woman's age	-0.00	0.00
Woman's age squared	0.00*	0.00
Man's birth cohort (ref. <1943)		
1943-1952	0.02	0.04
1953-1962	0.08	0.08
>1962	0.09	0.14
Woman's birth cohort (ref. <1943)		
1943-1952	0.01	0.06
1953-1962	-0.01	0.08
Man's father education (ref. low)		
Intermediate education	0.02	0.04
High education	0.01	0.05
Man's mother education (ref. low)		
Intermediate education	0.05	0.04
High education	0.05	0.07
Man's education (ref. low)		
Intermediate education	0.04	0.03
High education	0.10**	0.03
Woman's father education (ref. low)		
Intermediate education	-0.05	0.05
High education	-0.02	0.04

Table S4, continued		
Woman's mother education (ref. low)		
Intermediate education	0.03	0.04
High education	-0.01	0.08
Woman's education (ref. low)		
Intermediate education	-0.02	0.03
High education	-0.08+	0.05
Region type (ref. rural)		
Urban	0.02	0.03
Constant	0.99	1.12

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: SOEP (2017); weighted, multiply imputed.

Table S5 OLS regression models of employment clusters on rank-transformed gender wealth gap including further real estate, business assets, and tangible assets in Germany (N = 1378)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
Unstable 2.0 BW, early marriage	0.02	0.05
Stable 1.5 MBW, early marriage	0.05	0.06
Unstable 1.5 MBW, early marriage	0.11+	0.06
1.0 to 1.5 MBW, early marriage	0.10*	0.05
Stable 1.0 MBW, early marriage	0.06	0.05
Female diverse employment, late marriage	0.09+	0.05
Household gross worth 2017 (rank-transformed)	0.05+	0.03
Man's age	0.05	0.04
Man's age squared	-0.04	0.04
Woman's age	-0.00	0.00
Woman's age squared	0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	-0.01	0.07
1953-1962	0.04	0.12
>1962	0.09	0.17
Woman's birth cohort (ref. <1943)		
1943-1952	0.01	0.07
1953-1962	0.00	0.09
Man's father education (ref. low)		
Intermediate education	0.02	0.05
High education	0.00	0.07
Man's mother education (ref. low)		
Intermediate education	0.04	0.06
High education	0.04	0.09
Man's education (ref. low)		
Intermediate education	0.03	0.03
High education	0.03	0.04
Woman's father education (ref. low)		
Intermediate education	-0.04	0.06
High education	0.00	0.06

Table S5, continued		
Woman's mother education (ref. low)		
Intermediate education	0.05	0.05
High education	0.06	0.08
Woman's education (ref. low)		
Intermediate education	-0.01	0.03
High education	-0.09	0.07
Region type (ref. rural)		
Urban	0.01	0.04
Constant	0.27	1.75

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: SOEP (2017); weighted, multiply imputed.

Table S6 OLS regression models of employment clusters on rank-transformed gender wealth gap including extended set of controls in Germany (N = 1378)

	B	SE B
Employment cluster (ref. stable 2.0 BW, early marriage)		
Unstable 2.0 BW, early marriage	0.07	0.05
Stable 1.5 MBW, early marriage	0.10+	0.05
Unstable 1.5 MBW, early marriage	0.13*	0.06
1.0 to 1.5 MBW, early marriage	0.14**	0.05
Stable 1.0 MBW, early marriage	0.13*	0.05
Female diverse employment, late marriage	0.14*	0.06
Household net worth 2017 (rank-transformed)	0.05	0.03
Man's age	0.03	0.03
Man's age squared	-0.04	0.04
Woman's age	-0.00	0.00
Woman's age squared	0.00	0.00
Man's birth cohort (ref. <1943)		
1943-1952	-0.04	0.05
1953-1962	0.02	0.08
>1962	-0.01	0.15
Woman's birth cohort (ref. <1943)		
1943-1952	0.04	0.05
1953-1962	0.03	0.09
Man's father education (ref. low)		
Intermediate education	0.02	0.05
High education	-0.01	0.05
Man's mother education (ref. low)		
Intermediate education	0.04	0.06
High education	0.03	0.08
Man's education (ref. low)		
Intermediate education	0.00	0.03
High education	0.05	0.03
Woman's father education (ref. low)		
Intermediate education	-0.06	0.06
High education	-0.05	0.05

Table S6, continued		
Woman's mother education (ref. low)		
Intermediate education	0.07	0.06
High education	0.04	0.07
Woman's education (ref. low)		
Intermediate education	-0.00	0.03
High education	-0.04	0.05
Region type (ref. rural)		
Urban	-0.00	0.03
Man's individual inheritances (IHS-transformed)	0.00	0.00
Woman's individual inheritances (IHS-transformed)	-0.00	0.00
Household-level inheritances (IHS-transformed)	0.00	0.00
Man's father birth year	0.00	0.00
Woman's father birth year	-0.00	0.00
Man's mother birth year	-0.01*	0.00
Woman's mother birth year	0.00	0.00
Man’s number of siblings	-0.01*	0.01
Woman’s number of siblings	-0.01	0.01
Constant	16.79**	5.37

Note: (M)BW = (male) breadwinner. *+p<0.1 *p < .05. **p < .01. ***p < .001.*
Source: SOEP (2017); weighted, multiply imputed.

References

Aasve, A., Billari, F. C., & Piccarreta, R. (2007). Strings of adulthood: A sequence analysis of young British women's work-family trajectories. *European Journal of Population*, *23*, 369–388. https://doi.org/10.1007/s10680-007-9134-6

Fasang, A. E., & Liao, T. F. (2014). Visualizing sequences in the social sciences: Relative frequency sequence plots. *Sociological Methods and Research*, *43*(4), 643–676. https://doi.org/10.1177/0049124113506563

Grabka, M. M., & Westermeier, C. (2015). Editing and multiple imputation of item non-response in the wealth module of the German Socio-Economic Panel. In *SOEP Survey Papers, No. 272* (Vol. 18).

Institute for Employment Research. (2019). *IAB-Forschungsbericht: Revision der IAB-Arbeitszeitrechnung 2019*.

OECD. (2021). *Part-time employment rate (indicator)*. https://doi.org/https://doi.org/10.1787/f2ad596c-en

Office for National Statistics. (2021). *Average actual weekly hours of work for part-time workers (seasonally adjusted)*. Retrieved September 03, 2021, from https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/earningsandworkinghours/timeseries/ybvb

Rubin, D. B. (1976). Inference and missing data. *Biometrika*, *63*(3), 581–592. https://doi.org/10.1093/biomet/63.3.581

SOEP (2017). *SOEP-Core 2017: Personenfragebogen, Stichproben A-L3*. Retrieved September 03, 2021, from https://www.diw.de/documents/dokumentenarchiv/17/diw_01.c.611290.de/diw_ssp0563.pdf

UKHLS (2018). *UK Household Longitudinal Study Mainstage Questionnaire Wave 8, v04*. Retrieved September 03, 2021, from https://www.understandingsociety.ac.uk/sites/default/files/downloads/documentation/mainstage/questionnaire/wave-8/W8-questionnaire-consultation.pdf

Van Buuren, S. (2012). *Flexible imputation of missing data*. Chapman & Hall.

von Hippel, P. T. (2007). Regression with missing Ys: an improved strategy for analyzing multiply imputed data. *Sociological Methodology*, *37*(1), 83–117.

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SUMMARY

In light of population ageing and pension reductions, the importance to accumulate wealth as an alternative to pension income for old-age provision has increased. However, wealth is more unequally distributed between genders than income, with women having lower average wealth levels than men. This is also the case in married couples, leaving wives in a disadvantaged economic position hidden by the often erroneous assumption of full resource pooling within marriage. Yet, little is known about the way individuals within couples accumulate wealth over the life course. To address this research gap, this dissertation aims to explain how gendered life course experiences of employment and marriage are associated with the personal wealth of married women and men aged 50 and older. Building on the life course framework, Chapter 1 develops a model of personal wealth accumulation within couples. The three empirical chapters of this dissertation examine different parts of the model to understand the gendered consequences of a lifetime of wealth accumulation and the resulting within-couple gender wealth gap in later life.

The first study (Chapter 2) initially examines gendered wealth outcomes at the individual level, addressing the research question: How are employment trajectories related to individual wealth at older ages of men and women in Eastern and Western Germany? To answer this question, this study draws on data from the German Socio-Economic Panel (SOEP). The results reveal gendered ways of wealth accumulation, indicating that similar career paths result in different personal wealth outcomes for women and men in the gender-unequal welfare state context of Western Germany.

The second study (Chapter 3) examines the distribution of solely and jointly held wealth within couples and asks: How is the interplay of women's employment and marriage biographies associated with the ownership structure of sole and joint assets within married couples in later life in Western Germany? This study draws on data from the SOEP. The results indicate that early and stably married couples build strong economic units that hold most wealth jointly. However,

marriage does not protect women with a low labour market attachment from economic dependency on the partner in old age.

The third study (Chapter 4) takes a dyadic perspective to examine the within-couple gender wealth gap in later life by asking: How are married partners' employment biographies associated with the within-couple gender wealth gap in later life in Britain and Western Germany? This study uses data from the German SOEP and the UK Household Longitudinal Study (UKHLS). The results indicate that a similar division of labour throughout the life course can result in different levels of within-couple gender wealth inequality in later life across country contexts, particularly depending on the housing system.

Overall, this dissertation concludes that the interplay of gender, partnership, and the institutional context is important to understand the outcomes of personal wealth accumulation processes over the life course.

ZUSAMMENFASSUNG

Angesichts von alternden Bevölkerungen und Rentenkürzungen hat Vermögen als Alternative zum gesetzlichen Renteneinkommen zur Alterssicherung an Bedeutung zugenommen. Vermögen ist jedoch ungleicher zwischen Frauen und Männern verteilt als Einkommen, wobei Frauen ein durchschnittlich niedrigeres Vermögen haben. Dies trifft auch innerhalb von Paarbeziehungen zu, sodass sich Ehefrauen häufig in schlechteren ökonomischen Positionen als ihre Partner befinden. Diese Ungleichheit wird jedoch häufig durch die falsche Annahme der Gleichverteilung von Ressourcen innerhalb der Ehe verdeckt. Unklar bleibt jedoch, wie verpartnerte Personen Vermögen aufbauen. Diese Dissertation untersucht daher, wie geschlechtsspezifische Erwerbs- und Ehebiografien mit dem persönlichen Vermögen von verheirateten Frauen und Männern ab 50 Jahren zusammenhängen. Basierend auf der Lebensverlaufsperspektive entwickelt Kapitel 1 ein Modell zum Vermögensaufbau innerhalb von Paaren. Die drei folgenden empirischen Kapitel dieser Dissertation untersuchen verschiedene Teile des Modells, um die geschlechtsspezifischen Folgen des Vermögensaufbaus im Alter zu verstehen.

Die erste Studie (Kapitel 2) untersucht zunächst Geschlechterunterschiede im individuellen Vermögensaufbau und stellt die Frage: Wie hängen die Erwerbsverläufe von Männern und Frauen in Ost- und Westdeutschland mit ihrem persönlichen Vermögen im Alter zusammen? Mit Daten des Sozio-oekonomischen Panels (SOEP) zeigt die Studie geschlechtsspezifische Wege des Vermögensaufbaus auf. Diese weisen darauf hin, dass ähnliche Karrierewege in unterschiedlichem Vermögen für Frauen und Männer im traditionellen Wohlfahrtsstaatskontext von Westdeutschland resultieren.

Die zweite Studie (Kapitel 3) beleuchtet die Verteilung von Vermögen innerhalb von Paaren und fragt: Wie hängen Erwerbs- und Ehebiografien von Frauen mit der Verteilung von individuellem und gemeinsamem Vermögen innerhalb von älteren Ehepaaren in Westdeutschland zusammen? Diese Studie nutzt Daten des SOEP. Die Ergebnisse deuten darauf hin, dass früh verheiratete Paare starke wirtschaftliche Einheiten bilden. Jedoch kann die Ehe Frauen mit geringer

Arbeitsmarktbeteiligung nicht vor ökonomischer Abhängigkeit von ihrem Partner im Alter schützen.

Die dritte Studie (Kapitel 4) analysiert die Vermögensungleichheit innerhalb von Paaren und fragt: Wie hängen die Erwerbsbiografien beider Partner mit der Vermögensungleichheit innerhalb von älteren Ehepaaren in Großbritannien und Westdeutschland zusammen? Mit Daten des SOEP und der UK Household Longitudinal Study (UKHLS) zeigt die Studie, dass eine ähnliche Arbeitsteilung während des Lebensverlaufs zu unterschiedlicher Vermögensungleichheit innerhalb der Paare in beiden Ländern führt, was insbesondere durch die Rolle des Immobilienmarktes erklärt wird.

Diese Dissertation verdeutlicht abschließend, dass das Zusammenwirken von Geschlecht, Partnerschaft und institutionellem Kontext während des Lebensverlaufs wichtig ist, um die Determinanten von persönlichem Vermögen im Alter und der resultierenden Vermögensungleichheit im Paar zu verstehen.