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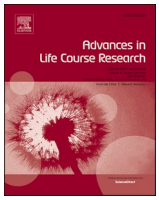

Couples' early career trajectories and later life housing consequences in Germany: Investigating cumulative disadvantages

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ABSTRACT

Using data on couples from the German Socio-Economic Panel (1995–2018), this study investigates how couples' early career trajectories affect housing outcomes in early adulthood and how this effect is mediated by couples' joint cumulative income. We apply a life course perspective by identifying dynamic treatments consisting of couples' consecutive employment statuses and examining their longer-term effects on homeownership and income shares spent on rent. Using multichannel sequence and regression analysis, we find that couples in which both partners have insecure employment trajectories, characterized by frequent spells of fixed-term employment and unemployment, are 25 percentage points less likely to own a home in early adulthood compared to couples with more secure career trajectories. Surprisingly, the couples' cumulative income does not remarkably mediate this effect, explaining less than one-fifth of the total effect. For couples who do not own their home but rent, we find that couples with insecure careers spend between 2 and 5 percentage points more of their joint income on rent compared to couples where both partners have secure career trajectories. Cumulative income disadvantages mediate the effects on shares of income spent on rent and reduce the effect sizes by 30–40%. Our findings indicate that inequalities caused by early career patterns can accumulate not only over time but also within couples and transfer to other areas of life, exacerbating housing and wealth inequalities in the longer run.

1. Introduction

Rising housing and rental prices are issues that have been extensively discussed in public debate in many industrialized countries, mainly for two reasons. First, homeownership is an important private pension investment to ensure low living expenses and a high living standard during retirement (Dewilde & Raeymaeckers, 2008). However, rising property prices prevent individuals and families from making the transition to homeownership, which could foster old-age poverty in the long run. Rising property prices are observed in almost all European countries, but the tensions are particularly visible on the German housing market. In Germany, construction prices for residential buildings have been rising by an average of 4% every year since 2000 (German Federal Statistical Office, 2020).

Second, competitive housing markets with increasing rents make it more difficult for renters to save privately for their pensions and accumulate capital to obtain loans to purchase a home (Arundel & Lennartz, 2020). In Germany, households that moved into their home in 2015 or later paid an average of 12% more rent than the average household in 2018 (German Federal Statistical Office, 2019). Therefore, homeownership opportunities are becoming increasingly difficult to attain and realize due to the increasingly difficult situation on the housing market.

Housing research has examined the determinants of homeownership and, in particular, highlighted the importance of the employment situation (Baron & Rapp, 2019; Bosmans, Hardonk, De Cuyper, & Vanroelen, 2016; Lazarus & Folkman, 1984). Unemployment, temporary employment, or other forms of non-standard work are argued to include greater perceived job and income insecurity (Kalleberg, Reskin, & Hudson, 2000). This insecurity might impede the ability to plan for the future, which affects longer-term decisions (Bosmans et al., 2016; Lazarus & Folkman, 1984).

In particular, young workers who are in a phase of life in which many crucial decisions for the future are made (e.g., concerning family formation or homeownership), are at risk of facing such career insecurities (Baron & Rapp, 2019; Gebel & Giesecke, 2009). Previous studies show that the likelihood of becoming a homeowner depends strongly on the type of employment status (Baron & Rapp, 2019; Lersch & Dewilde, 2015; McGarth & Keister, 2008) and income uncertainty (Diaz-Serrano,

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2005; Haurin, 1991) that individuals experience.

The housing literature has a long tradition of theoretically referring to a life course framework when considering the impact of family histories on longer-term housing careers (Haurin, Hendershott, & Kim, 1994; Henretta, 1987; Ineichen, 1981). This strand of literature also emphasizes the role of the couple perspective (Baron & Rapp, 2019; Dotti Sani & Acciai, 2018; Kurz, 2000; Wagner & Mulder, 2000). The life course perspective compliments this line of research by focusing on the longer-term effects on moving behavior (Herbers, Mulder, & Mòdenes, 2014) or housing qualities (Feijten & Mulder, 2005), emphasizing the relevance of the timing of events and the longevity of effects.

This paper ties in with the life course perspective by making three contributions to the previous literature on career (in)security and housing. First, we analyze the effect on housing of couples' joint employment trajectories that incorporate different employment statuses of both partners in parallel. To do so, we apply a two-step approach by first performing multichannel sequence analysis and cluster analysis to define patterns of couples' careers. This first step allows us to build a dynamic treatment, which takes both partners' early career (in)security into account. In a second step, we estimate the effect of these career types of couples on the probability to be homeowners and the income spent on rent in early adulthood, namely when couples are in their mid-twenties to late thirties. Previous studies have highlighted the importance of career interruptions, but have mainly focused on individual employment statuses (Kurz, 2000) or unemployment experiences (Feijten & Mulder, 2005; Herbers et al., 2014). In addition, several studies emphasize the importance of a longer-term couple perspective (Baron & Rapp, 2019; Blom, Verbakel, & Kraaykamp, 2020; Kurz, 2000), but few studies apply this design. If at all, these studies control for the partner's employment status (McGarth & Keister, 2008) and only rarely focus on couples (Dotti Sani & Acciai, 2018).

Second, we add to the housing literature by looking not only at the likelihood of homeownership, but also at rental outcomes. While the previous literature mainly compares the effect of different independent variables on being either a homeowner or a renter (Arundel & Lennartz, 2020; Bobek, Pembroke, & Wickham, 2020; Lennartz & Helbrecht, 2018; Thomas & Mulder, 2016), we utilize the concept of rent burdens (Backhaus, Gebers, & Schröder, 2015). More precisely, we refer to the share of income spent on rent. Rent burden, or sometimes referred to as rent affordability, is an important topic of public debate, but the literature on its determinants is sparse (Backhaus et al., 2015).

Third, we empirically test whether households' cumulative income (dis)advantages mediate the effects on the two housing outcomes. Following up on an earlier study showing that labor income insecurity reduces the probability of becoming a homeowner (Diaz-Serrano, 2005), we apply this insight to the context of employment trajectories with varying degrees of income (in)security and extend it to rent outcomes. The mediation effect of income has been theorized in several studies (Dotti Sani & Acciai, 2018; Haurin, 1991; McGarth & Keister, 2008), but has not yet been empirically tested in a longer-term context of housing consequences.

Three research questions are posed to examine whether (dis)advantages in employment trajectories at early career stages can accumulate within couples and over time to affect housing outcomes. We ask, first, how couples' early career trajectories affect the probability of being homeowners in the last year of observation. Second, we examine whether couples' early career trajectories affect the share of income spent on rent in the last year of observation. Third, we investigate the relevance of joint cumulative income as a mediator of the effect of couples' early career (in)securities on both the probability of being homeowners and the share of income couples spend on rent.

To answer our research questions, we use longitudinal household data of the German Socio-Economic Panel (SOEP) from 1995 to 2018 on couples between the ages of 18 and 38 who are observed for seven years. We apply multichannel sequence analysis and cluster analysis to reveal distinct patterns of employment career (in)security within couples and multivariate regression analysis to examine the longer-term effects of these patterns on homeownership and the share of income spent on rent.

1.1. The German context

Germany represents an especially interesting case for our study for two main reasons: the characteristics of its housing system and its labor market system. More specifically, Germany has the lowest homeownership rate in the Eurozone, with about 40% of households owning their home in 2020, and the second lowest among OECD countries (Kaas, Kocharkov, Preugschat, & Siassi, 2020). Accordingly, almost two-third of households are renters. Renting and social housing for renters have a long tradition in Germany, dating back to the period after World War II (Voigtländer, 2009). There is only moderate rent regulation, i.e., landlords are relatively free to choose tenants and rent prices, whilst rent increases for existing rental contracts are tightly regulated (Cholodilin, Mense, & Michelsen, 2016). Moreover, tenants are strongly protected, which could make it more attractive to rent than to own a home. This strong renter protection also makes the renting market more rigid and more selective about who rents and who owns a home (Kurz, 2000; Voigtländer, 2009; Wagner & Mulder, 2000).

At the same time, the German labor market has one of the lowest youth unemployment rates within the Eurozone. In 2014, for example, about 4% of people aged 15–34 were unemployed, 49% were labor market inactive (including education and civil service), and 47% were employed. Of all employed young persons, 80% had a permanent job contract, about 15% had a fixed-term job contract, and 5% were self-employed (Dietrich, 2017). Germany is one prime example of a strictly separated 'two-tiered' labor market. Such labor markets comprise a primary labor market segment with highly regulated and protected well-paid permanent employment and a secondary labor market segment, including atypical employment of lower quality, which is less regulated and protected (Gundert & Hohendanner, 2014). Therefore, individuals in the secondary segment may be particularly disadvantaged when it comes to housing decisions.

2. Theory and hypotheses

2.1. Employment statuses and the life course framework

Employment careers consist of successive labor market and employment statuses. Different labor market or employment statuses should offer distinct advantages or disadvantages in terms of manifest functions like income or latent functions such as (perceived) job stability (Jahoda, 1982). *Unemployment* or *inactivity* do not provide the manifest function of income, making it more difficult to afford homeownership or expensive rents. In contrast, employment provides income, but must be further distinguished by type of contract or employment (Kalleberg, 2000).

Permanent employment offers income and the prospect of a secure, stable, and long-term job, possibly facilitating entry into homeownership and the payment of high rents. In contrast, *fixed-term employment* is associated with rather low job stability and often lower income (Barbieri & Scherer, 2009; Gebel, 2010; Kalleberg, 2000). The term fixed-term employment summarizes all forms of contracts that have a predetermined expiry date, including fixed-term contracts with one employer, temporary agency work on a fixed-term contract, as well as casual or seasonal work. Alternatively, *self-employment* is not tied to any specific employer, but depends on the demand for the goods or services offered by the self-employed person. This dependency makes both income and continuity of employment more fluctuating and uncertain compared to permanent employment.

Since all these labor market statuses could be part of a single employment trajectory, it is important to examine not only the effects of current employment statuses or single transitions. Rather, for an accurate prediction of homeownership and the income spent on rent, the

focus should be on how (dis)advantages of different employment paths might transfer to housing.

Because couples share housing costs, both the probability of being homeowners and the amount of income spent on rent should depend on the early employment careers of both partners. For instance, if both partners have high career volatility early in their career, e.g., because both partners switch frequently between unemployment and self-employment, the disadvantages in income and job security accumulate within the couple and should jointly affect housing in later years. The effect for these couples should be negative compared to couples in which both partners are permanently employed during their early careers. Accordingly, the advantages of one partner's career trajectory may also offset the disadvantages of the other partner's insecure career.

These arguments refer to the idea of 'interdependence between life domains' (Bernardi, Huinink, & Settersten, 2019), meaning that resources from one domain (i.e., the employment domain) are related to goals from another domain (i.e., the housing domain). The couple perspective refers to the idea of 'linked lives' (Elder, 1994) or 'multilevel interdependence of the life course' (Bernardi et al., 2019). These interdependencies, or linked lives, describe the idea that individuals are embedded in higher level social units, i.e., relationships, such as partnership or marriage, which influence them in their decision-making processes and enable the sharing of resources (Elder, 1994). In addition, the arguments point to the 'time-related interdependence of the life course' (Bernardi et al., 2019), meaning that accumulated resources in the employment trajectory directly affect the likelihood in later years of being homeowners and the amount of income that is spent on rent.

2.2. The effect of couples' career trajectories on homeownership

Individuals experiencing repeated periods of job instability early in their careers, such as fixed-term employment or self-employment, earn lower wages on average compared to individuals with standard careers (Booth, Francesconi, & Frank, 2002b; Booth, Dolado, & Frank, 2002a; Gash, 2008; Gebel, 2010). In periods of unemployment or labor market inactivity, individuals even receive no labor income. As a result, these individuals are unlikely to build important savings early in their careers, which are however necessary to afford a home in later years. In addition to the income disadvantages, the job insecurity and instability experienced in such trajectories make it rational to avoid large and long-term financial investments such as buying a home. Homeownership would also tie individuals to a specific location, making frequent job and location changes more difficult (Baron & Rapp, 2019).

In turn, since lenders want to keep the risk of mortgage default low, credit institutions might find it less attractive to lend to the unemployed, inactive, or individuals with insecure employment careers (Akdogan, Karacimen, & Yavuz, 2019). From a life course and linked lives perspective, these disadvantages accumulate not only over time but also within households (Bernardi et al., 2019; Elder, 1994). Subsequently, these cumulative disadvantages could reduce the likelihood of entry into homeownership for couples in which both partners have an insecure employment trajectory.

In contrast, if at least one partner has a secure and continuous permanent job that also leads to potentially higher savings, credit institutions might also be more willing to lend to these individuals. In case of couples where both partners have secure employment careers, characterized primarily by permanent employment and a secure income, credit institutes should be even more willing to give out large loans.

H1a. : The more insecure early employment trajectories of couples are, the less likely couples should be homeowners later in their careers.

One of the most important explanations for these homeownership disadvantages are accumulations of income inequality within early careers. Couples in which both partners have secure careers from the start can save money continuously to gain security and be able to make large investments. In contrast, couples on insecure career pathways with repeated unemployment, inactivity, fixed-term or self-employment have a much harder time generating large savings (Akdogan et al., 2019). Moreover, young workers on insecure career pathways not only earn less or no pay on average compared to permanent workers, but they also have poorer or almost no prospects for promotion and corresponding earnings increases (Booth et al., 2002b; Gash, 2008; Gebel, 2010). These disadvantages in savings faced by young people with unstable employment trajectories amplify over time and make it more complicated for couples to achieve homeownership.

H1b. : Lower cumulative income partly mediates the negative effect of couples' early insecure employment trajectories on the probability of being homeowners later in their careers.

2.3. The effect of couples' career trajectories on the share of income spent on rent

It is not only the ability to buy one's own home that may be negatively affected by early career instability. Because of income disadvantages, individuals with repeated spells of insecure employment statuses, such as inactivity, unemployment, fixed-term, or self-employment may have more difficulty finding affordable rental housing relative to their income. This difficulty can be exacerbated over time because landlords tend to raise rents with each new tenant to compensate for renovations and use rising property values to their advantage.

The longer one can live in the same place, the smaller the share of income one tends to spend on rent. Two important reasons are that rent increases for existing rental contracts are tightly regulated by German law (Cholodilin et al., 2016), and incomes usually rise over time. Repeated inactivity, unemployment, fixed-term or even self-employment should be associated with more frequent job changes and moves than stable permanent employment (Addison, Cotti, & Surfield, 2015). Therefore, on average, rent tenure is likely to be shorter for workers with insecure careers than for workers with stable careers. Simultaneously, for workers with insecure careers, promotions and income increases are less likely than for workers with continuous permanent careers (Booth et al., 2002b; Gash, 2008; Gebel, 2010). Consequently, workers affected by unstable and insecure careers may find it more difficult to obtain housing with affordable rents relative to their income.

In addition, individuals with insecure career patterns may be more reluctant to search extensively for affordable rental housing. Individuals with insecure career patterns might anticipate moving soon, such as when their fixed-term contract expires, and they need to find a new job. This anticipated volatility could also lead individuals with insecure career trajectories to accept rents that are more expensive relative to their income. Besides that, landlords – comparable to credit institutions – might be less willing to rent to employees with non-permanent jobs or to the unemployed to ensure continuous payment of rents, if landlords do not need tenants only for temporary interim rent. These preferences of landlords could further force individuals with unstable careers and low incomes to accept housing on unfavorable conditions, increasing the likelihood of paying a significant portion of their own income for rent.

Just as buying a house is usually a household decision for which both partners' income and career prospects are considered (Blom et al., 2020), finding affordable rental housing should also be determined by the couples' shared resources. Hence, all of these considerations apply even more when both partners in a couple experience insecure careers. In contrast, couples with secure careers and higher incomes should be more willing to invest in longer searching periods to find adequate and affordable rental housing relative to their income, as they expect to live at the same place for a longer time. Due to their stable jobs, it is more likely that both partners will remain in the same rental home for an extended period of time. Since individuals with such stable careers are more likely to receive promotions and salary increases, their advantages in the shares of income spent on rent should become even more

favorable over time.

H2a. : The more insecure early employment trajectories of couples are, the higher the share of couples' income spent on rent later in their careers should be.

Accumulated income disadvantages can theoretically explain some of these differences, although the reasons are not the same as for the link between career instability and homeownership. For couples with at least one partner who is on an insecure career path, it is likely that the accumulation of prior low or no income directly affects the current income and thus the share of the income spent on rent. More specifically, prior low income due to unstable careers could be interpreted as a signal of low work attachment and commitment by employers (Fuller, 2011; Mooi-Reci & Wooden, 2017).

These signals can directly affect the current income in terms of so-called scarring effects (Dieckhoff, 2011; Gangl, 2006). Scarring effects suggest that earlier disadvantages due to insecure careers, such as lower earnings and lower-quality jobs or periods of unemployment, can negatively affect future employment chances and income. This mediating effect may be even stronger when both partners have unstable early career trajectories. Within unstable career trajectories, couples accumulate low earnings from low-quality jobs.

These disadvantages reduce subsequent joint income, narrowing the gap between income and rent payments, i.e., the disposable income. Couples with high career security are more likely to receive more frequent promotions and salary increases. The accumulation of these increasing income advantages also affects the current income shares spent on rent. It is likely that the promotions or seniority payments from the earlier career are still visible in the later career.

H2b. : Lower cumulative income partly mediates the positive effect of couples' early insecure employment trajectories on the share of couples' income spent on rent later in their careers.

3. Empirical strategy

3.1. Data

The data for our analysis come from the German Socio-Economic Panel (SOEP). The SOEP is an annual household panel providing information on the employment and living conditions of German households since 1984 (Wagner, Frick, & Schupp, 2007). The initial response rate is over 60% for the first sample drawn in 1984, and the average wave-to-wave re-interview rate is over 70% (Siegers, Belcheva, & Silbermann, 2020). Besides the high response rates, the survey ensures high data quality and panel stability by adding refreshment samples throughout the years and by following up on individuals who have left their original household (Siegers et al., 2020; Wagner et al., 2007).

For our analyses, the SOEP yields three main advantages. First, it provides detailed annual data on individuals' activity status, type of contract, and various housing measures, such as information on homeownership and rent. Second, we have independent information from both partners because each adult household member is interviewed separately. This design allows us to construct reliable sequences of couples' employment trajectories. Third, the SOEP is one of the longest-running household panel surveys, allowing us to examine longer employment sequences and later career outcomes such as homeownership and the share of income spent on rent.

Our sample is restricted to the years from 1995[1] to 2018 and includes heterosexual couples, married or otherwise, living together in a household throughout the observation period. Both partners have completed education, which excludes e.g., insignificant student jobs from the analysis. To depict early careers, both partners are between 18 and 38 years old. In addition, the probability of homeownership increases significantly for individuals in this age range (Andrews & Sánchez, 2011).

Couples must be observed for seven subsequent years to be included in the sample. This restriction ensures that we only analyze stable and longer-term couples who are at a stage in life when family formation and transition to homeownership are most likely (Baron & Rapp, 2019). Moreover, we arrive at the seven-year observation window as a compromise between being able to investigate early careers of stable couples holistically and not losing too many cases with an even longer observation period. We do not define our observation period as the first seven years in the labor market after partners completed their education, since partners within couples do not necessarily complete education at the same time.

Of the 174609 couple-years we observe in the SOEP, 136667 are deleted because they fall outside our age restriction, and another 20015 because they fall outside our required seven-year observation period. After additionally deleting observations with missing values on relevant variables, the restrictions finally yield a sample size of 1257 couples and 8799 couple-years. In our sample, male partners are on average born in 1973 and are on average about 28 years old at the first observation. Female partners are on average born around 1975 and are on average 26 years old at the first observation.

3.2. Methods

To test the hypotheses, we apply multichannel sequence analysis (Gauthier, Widmer, Bucher, & Notredame, 2010). This approach allows us to illustrate careers as a succession of states and to create holistic treatments of career (in)security or career (in)stability that do not only focus on single career statuses or transitions (Aisenbrey & Fasang, 2010; Fuller & Stecy-Hildebrandt, 2015). Thus, sequences consist of annually measured employment statuses of both partners.[2] The first step of this approach is to measure the distance between sequences of couples. To measure this distance, the individual career sequences of both partners are combined into one sequence consisting of multiple states (in this case, the employment status of each partner).

In a second step, the similarities between each couples' sequence are judged using Optimal Matching (OM). Within this approach, a pair of sequences is considered more distinct from one another if more changes need to be made to one sequence to transform it into the other (Halpin, 2017; Studer & Ritschard, 2016). Each change applied to the sequences is associated with a certain cost assigned by the researcher. Here, we assign constant substitution costs of 2 and insertion or deletion (indel) costs of 1. Other algorithms, such as Hamming distances, are more sensitive to timing differences between sequences (Studer & Ritschard, 2016). However, timing differences are not central to answering our research question. We are mainly interested in *how much* career (in)stability certain trajectories entail, rather than *when* this (in)stability occurs.

The alignment of sequences results in a so-called distance matrix, which provides information about the (dis)similarity for each pair of couple sequences. This matrix forms the basis for a cluster analysis that reveals distinct patterns of couples' employment trajectories. We use the most commonly applied hierarchical Ward's algorithm for clustering of sequences (Halpin, 2017; Ward, 1963). This algorithm seeks to minimize the within-cluster variance, which increases homogeneity within the clusters.

Deciding on the correct number of clusters is not straightforward. We take suggestions from previous literature and form our decision based on

[1] We include only the waves from 1995 and onwards since the type of contract was not measured accurately enough for our analysis in the waves before.

[2] We replace missing employment statuses in the sequences of each partner if the state before and after the missing state are the same as suggested by Halpin (2016).

the meaningfulness of the different cluster solutions according to our proposed theory. In addition, we rely on objective measures such as the elbow method and average silhouette width (Aisenbrey & Fasang, 2010; Fuller & Stecy-Hildebrandt, 2015; Studer, 2013). While the elbow method suggests an optimal cluster number of three or four clusters, looking at the average silhouette width suggest a three-cluster solution fits best. Ultimately, we opt for a four-cluster solution, as the three-cluster solution would not sufficiently differentiate different types of atypical employment, a difference that is not only empirically, but also theoretically important.

Of course, partitioning all couple sequences into four types of couples' career patterns still leaves some heterogeneity within the clusters, with rare couple career sequences not represented as a separate cluster. Nonetheless, each cluster summarizes a specific pattern of couples' career trajectories that can be generalized to all individual couple sequences within the cluster (Fuller & Stecy-Hildebrandt, 2015). The multichannel sequence analysis is performed in R using the TraMineR package (Gabadinho, Ritschard, Mueller, & Studer, 2011).

The final step of our analysis uses the resulting clusters of career trajectories to predict homeownership and the share of income spent on rent. The patterns of couples' career trajectories resulting from clustering the multichannel sequences are measured during the early career t_0. The housing outcomes, namely the share of income spent on rent and homeownership, are measured in the later career t_1. Using this definition, we impose a causal order of events. We estimate average marginal effects (AMEs) from binary logistic regression models (homeownership) and perform linear regression analyses (share of income spent on rent). Standard errors are clustered on the couple level to reveal correct test statistics.

To test our hypotheses on homeownership and the shares of income spent on rent, we estimate two models. The first model includes only the patterns of career trajectories to predict homeownership (H1a), or shares of income spent on rent (H2a). The second model additionally includes the cumulative household income as a mediator into the two distinct models (H1b, H2b). Therefore, the coefficient for each career pattern in the first model equals the total effect (H1a, H2a), while the coefficient in the second model show the direct effect (H1b, H2b). The difference between the two coefficients indicate how much can be explained by the household income (indirect effect). We use the *KHB* ado in Stata (Kohler & Karlson, 2010), which allows the estimation of the statistical significance of the mediation effect also for binary logistic regression models (Mustillo, Lizardo, McVeigh, & Rory, 2018).

3.3. Measures

3.3.1. Independent variable

We use the clusters of couples' career sequences as our treatment. In these sequences, each partner can be observed in five different states: being out of labor, registered as unemployed, self-employed, having a permanent job, or having a fixed term-job. Therefore, we depict the labor market positions discussed in the theory section. These states are measured on an annual basis in the SOEP for seven consecutive years and for both partners within a household. From the cluster analysis, we obtain four distinct clusters or patterns of couples' early employment trajectories, which we describe in more detail in the descriptive results Section (4.1).

3.3.2. Dependent variables

Homeownership is measured at the household level (i.e., at the couple level) by asking whether the dwelling in which couples currently live is owned or rented by them. Responses are summarized into homeownership (= 1) and no homeownership (= 0), indicating that household members are tenants. Couples living in any other types of housing, such as dormitories, are excluded from the analysis.

For all couples who pay rent and do not own their home, we consider the affordability of their rent as our second outcome of the housing situation. Specifically, we measure what percentage of the couples' total income is spent on rent (Backhaus et al., 2015). For this ratio, we look at the share of total household net income, which includes any government payments like housing benefits, that is spent on rent (including utilities). This measurement of income is important because if we were to look only at employment income, we would systematically overestimate the negative effect of insecure couple careers on the share of income spent on rent. Government payments such as housing benefits are intended to help poorer households with housing affordability, which may also cushion the impact of those careers on the shares of income spent on rent.

The two outcome variables are measured in the last year of observation (year seven), when partners within couples are between a minimum of 25 (the lower age limit of the sample restriction 18 +7) and a maximum of 38 years old (the upper age limit of the sample restriction).

3.3.3. Mediator

Cumulative income is measured by the same income variable we use to measure the shares of income spent on rent. The mediator measures couples' cumulative net household income (in 10000 Euro increments) over the seven-year observation period. For the very few missing values (approximately 3% of the couple-years), we use the imputed version of the household income variable to avoid losing important information on couples (Frick & Grabka, 2014). Otherwise, the unimputed version could have biased the results.

3.3.4. Control variables

Sociodemographic characteristics of both partners measured in the first year of observation are included as control variables. These characteristics include the highest educational attainment in the couple, the year of the start of the sequence, the year of birth of both partners, the migration background of both partners, the occupation of the parents when respondents were 15 years old (highest within the couple), the East or West German location of the household, and the existence of children in the household. We expect this sociodemographic information to affect both the assignment to the couple employment clusters and the likelihood of being homeowners as well as the shares of income spent on rent. We only include confounding control variables that have an effect on both treatment and outcome to avoid overcontrol and simultaneity bias in our models (Elwert & Winship, 2014). Table 1 in the Appendix summarizes how these control variables are distributed in each of the four clusters, while Table 2 in the Appendix summarizes how the dependent variables are distributed across clusters.

4. Results

4.1. Descriptive results of the multichannel sequence analysis

Our descriptive findings refer to the four distinct career patterns revealed by the cluster analysis on the multichannel employment sequences, which are presented in a sequence index plot (Fig. 1). The clusters on the left describe the careers of male partners, while the clusters on the right illustrate the careers of female partners.

The first cluster (first row in Fig. 1) summarizes the majority of couples, with slightly more than 50%, and can best be described as *dual stable career couples*. In this cluster, both partners work in permanent jobs for most years of their early careers. However, while men are permanently employed for most years (5.96 years on average), we see

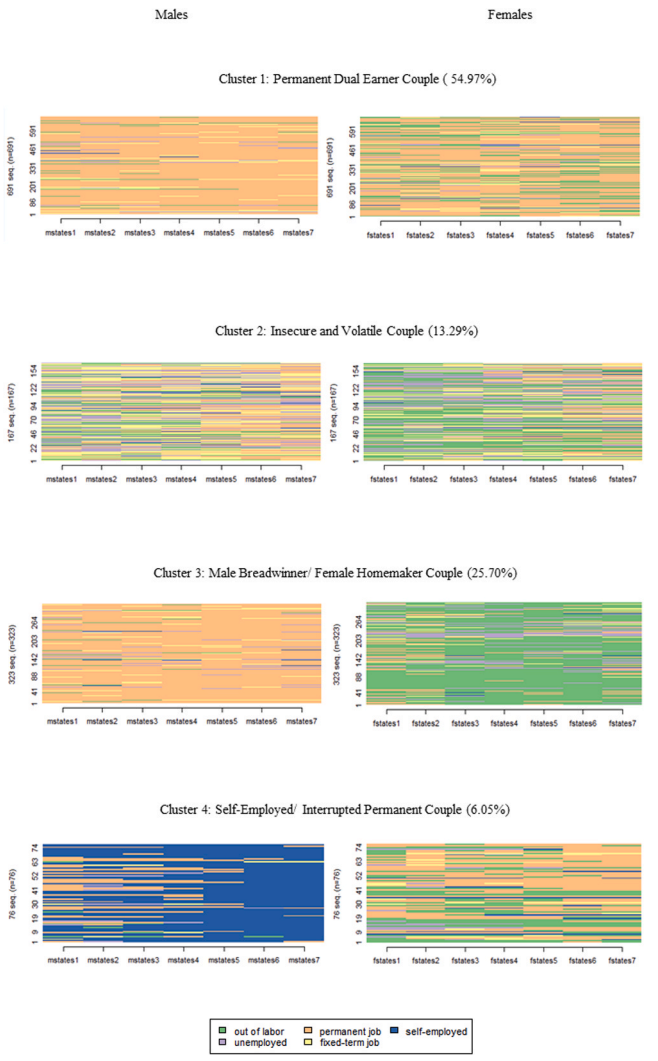

Fig. 1. Clusters of couples' early career trajectories. *Note*: Socio-Economic Panel, version 35, 1995–2018.

some interruptions (out of labor) for women. These gaps could indicate interruptions due to childcare or other caregiving responsibilities. Female partners spend an average of 4.66 years in permanent employment in this cluster.

The second cluster (second row in Fig. 1) comprises about 13% of couples. Both partners have *insecure and volatile* careers. Especially the male partners spend a lot of time in fixed-term employment (2.13 years on average) and unemployment (1.74 years on average). However, men in this cluster also spend some years in permanent employment (1.75 years on average). Looking at the respective cluster, we see that some men make transitions to permanent employment, especially at the end of our observation window. Among female partners in this cluster, the most time is spent out of labor (2.87 years on average). However, the amount of time they spend in unemployment (1.57 years on average) and in fixed-term employment (1.40 years on average) follows closely behind. In general, couples in this cluster seem to have more instable and turbulent careers.

The first two clusters have in common that both partners follow similar career trajectories. This similarity could reflect assortative mating. It also means that career advantages or disadvantages associated with certain career trajectories accumulate in these couples.

The third cluster (third row in Fig. 1) comprises the second most couples (about a quarter) and can be best described as the typical arrangement of *male breadwinner/female homemaker*. In this cluster, men work most of the time in permanent jobs (6.03 years on average), while the female partner does not take part in the labor market most of the time (5.20 years on average). Compared to the *dual stable career couple* and the *insecure and volatile couple* cluster, we see a clear division of tasks within the couple. The male partner takes on the task of breadwinning and works on a secure employment trajectory, while the female partner presumably takes on the task of homemaker and does not actively participate in the labor market.

The last cluster, the *self-employed/interrupted permanent* cluster (last row in Fig. 1), is the smallest with only slightly more than 6% of cases. It includes couples where the male partner is mainly self-employed (5.37 years on average) and the female partner moves in and out of the labor market between periods of permanent employment. The female partner spends the most years in permanent employment (3.49 years on average), followed by periods of labor inactivity (2.25 years on average). In contrast to the *dual stable career* and the *insecure and volatile* cluster, the career experiences of the partners in the *male breadwinner/female homemaker* and the *self-employed/interrupted permanent* clusters are very different from each other.

The four clusters illustrate the different levels of stability and security associated with couples' career trajectories. The *dual stable career couple*, in which both partners have standard careers consisting mainly of permanent employment, arguably entails the most career security. At the other end of the spectrum is the cluster of couples with *insecure and volatile* careers consisting of fixed-term employment, unemployment, and even, especially for female partners, labor market inactivity. These career patterns closely resemble the entrapment often associated with non-standard jobs. The other two clusters can be located somewhere between these two extremes of career security and insecurity. The *male breadwinner/female homemaker* cluster represents a degree of security because at least the male partner has a stable job. The self-employment of the male partner in the last cluster, the *self-employed/interrupted permanent* couple cluster, which could also entail some degree of career insecurity, is balanced by relatively long periods of permanent employment of the female partner.

A look at the characteristics of the couples in each cluster (Table 1 in the Appendix) reveals that couples in the *insecure and volatile* career cluster are the youngest within the sample. At sequence start, men in this cluster are on average 26 years old, while their female partners are on average 24 years old. In addition, the couples in this cluster are from the youngest birth cohort, with men born on average around 1977 and women around 1979.

These findings are consistent with previous literature showing that labor market insecurity is most prevalent among recent cohorts of young workers (Baron & Rapp, 2019; Gebel & Giesecke, 2009, 2016). Men are on average oldest in the cluster *self-employed/interrupted permanent* (about 29 years), but closely followed by men in the *dual stable career couple* cluster (about 28 years). Women are oldest in the *dual stable career couple* cluster with about 26 years. Finally, women in the *male breadwinner/female homemaker* cluster belong to the oldest birth cohort, born on average around 1974. Among men, the oldest birth cohorts are found in the *self-employed/interrupted permanent* and the *male breadwinner/female homemaker* cluster, with birth years around 1972.

4.2. Multivariate analyses: regression results

To test our hypotheses, we estimate regression models that incorporate the identified career patterns to predict housing outcomes in early adulthood and account in a second step for cumulative income as a

mediator. We are especially interested in the disadvantages that may arise from insecure careers compared to secure careers. Hence, we use the *dual stable career couples* cluster (i.e., the most secure one) as the reference category in our models. For the binary logistic regression models, we estimate AMEs that indicate the probability in percentage points to experience homeownership for couples belonging to the remaining clusters relative to the reference cluster. The coefficients of all regression models can be found in the Appendix (Table 3 for homeownership and Table 4 for income spent on rent).

4.2.1. The effect of couples' career trajectories on homeownership

We expect in H1a that the more insecure a couple's early career trajectory is, the less likely it is to be homeowners in early adulthood. In H1b, we hypothesize that the cumulative household net income may be a mediator of the effect of couples' career (in)security on the probability of homeownership. To test these hypotheses, we estimate a model once without (total effect, results on H1a) and once with the mediator (direct effect, results on H1b) and perform a statistical test for the mediation effect (Table 3, last column). The main findings are depicted in Fig. 2.

The first coefficient in each row (triangle) represents the total effect estimated based on the specification without cumulative income as a mediator (finding on H1a). Directly below each total effect is the respective direct effect (finding on H1b), illustrating the impact of the employment trajectories after controlling for the cumulative net household income (circles). In the last row, we see the effect of cumulative household net income on the probability of homeownership, which is included only in the second model specification. The results represent AMEs of the logistic regression predicting homeownership in the last observation, that is, when couples are in their later careers.

The estimates for the total effects show that couples in the *insecure and volatile* cluster have a much lower probability of homeownership (25 percentage points) compared to secure career couples. *Male breadwinner/female homemaker* couples are 2 percentage points less likely to be homeowners. However, this difference is statistically insignificant. In contrast to what we expected, *self-employed/interrupted permanent* couples have a 2 percentage points higher likelihood of being homeowners compared to the most secure pattern.

While we hypothesize that self-employment is relatively insecure, previous studies show that farmers, who are often also self-employed, tend to be homeowners (Kurz, 2000, 2004). Moreover, studies which argue that self-employees are likely to have business relationships to local clients, tying them to this specific location, also find that the self-employed are more likely to own their home (Mulder & Wagner, 1998). These findings and the fact that self-employment is a heterogeneous employment category could explain the small positive and statistically insignificant effect we find.

In line with our hypotheses on H1a, we see that couples' insecure early career trajectories – especially when both partners experience early career insecurity – reduce the likelihood of being homeowners in early adulthood.

Turning to the results for H1b, we see a statistically significant difference of 4 percentage points (-0.25-(-0.21) $= -0.04$ with $z = -3.44$) between the total effect and the direct effect of the likelihood of homeownership for *insecure and volatile* couple career trajectories compared to the most secure one. The direct effect is smaller than the total effect, but still significant and meaningful (21 percentage points). When comparing *male breadwinner/female homemaker* couples to secure couples, the coefficient becomes positive when cumulative income is included in the model. These couples are now slightly more likely to be homeowners compared to the secure employment career couples. However, this difference is statistically insignificant ($z = .46$). Comparing the likelihood of the *self-employed/interrupted permanent* couple to be homeowners with the secure employment trajectories couples, the total effect is almost equal to the direct effect, implying that there is no substantial mediation effect, although it is still significant ($z = 2.73$).

Finally, there is a positive effect of the cumulative net household income of 2 percentage points, i.e., a 10000 Euros increase in cumulative income increases the likelihood to be homeowners by 2 percentage points. This effect is not as substantial as one might have expected.

These results imply – in line with our hypothesis H1b – that there is a mediating effect of cumulative household earnings, even if it is rather small and only occurs for *insecure and volatile couples*.

4.2.2. The effect of couples' career trajectories on the share of income spent on rent

In H2a, we expect that the more insecure couple career patterns are, the higher the share of income spent on rent will be. The final hypothesis, H2b, addresses the mediating role of cumulative income (dis)advantages on the relationship between career trajectories and the share of income that is spent on rent in early adulthood. The total (triangle, findings on H2a) and direct effect (circle, findings on H2b) are shown in Fig. 3, which presents the results of the linear regression models (results of the statistical tests for the mediator can be found in Table 4, last column).

Looking at the total effects, we see that couples with insecure careers spend a significantly higher share of their income on rent, which makes their housing less affordable. More specifically, compared to the most secure couple career pattern, couples in the *insecure and volatile* career cluster spend about 5 percentage points of their income more on their rent. Interestingly, the traditional *male breadwinner/female homemaker* couple is also at a significant disadvantage here compared to the *dual stable career couple*. Moreover, the effect is almost as large as for the most insecure career couples. For *self-employed/interrupted permanent* employment couples, the ratio is also higher compared to secure couple career trajectories (1.56 percentage points), but statistically insignificant. These findings support hypothesis H2a.

Regarding the results for H2b, the largest total effect, that of *insecure and volatile couples* compared to *dual stable career couples*, is partly mediated by cumulative income. More specifically, the direct effect is 1.87 percentage points smaller, implying a decrease in the effect size of almost 40%. This difference is also statistically significant ($z = 2.52$). As for the comparison between the traditional *male breadwinner/female homemaker couples* to the most secure type of couples' career trajectories, the large positive total effect decreases by 1.39 percentage points. In relative terms, the total effect shrinks by 31%. Thus, the cumulative income disadvantages cannot explain as much of the effect as for the most insecure couples, but the reduction is still statistically significant ($z = 1.96$). Therefore, cumulative income disadvantages appear to play an important role in the larger shares of income spent on rent by the *insecure and volatile couples* and *male breadwinner/female homemaker couples* compared to *dual stable career couples*.

Although the effect is not fully explained by cumulative income, it explains more than one-third of the effect for both types of couples. For *self-employed/interrupted permanent couples*, for whom the total effect is the smallest, adding the cumulative income to the model slightly increases the effect by .39 percentage points. However, this increase is neither empirically nor statistically significant ($z = -.56$). The findings thus do not support the hypothesis that cumulative household income plays any important role in this rather small group difference. Finally, looking at the effect of cumulative income, we find that a 10000 Euros increase in cumulative household income leads to a statistically

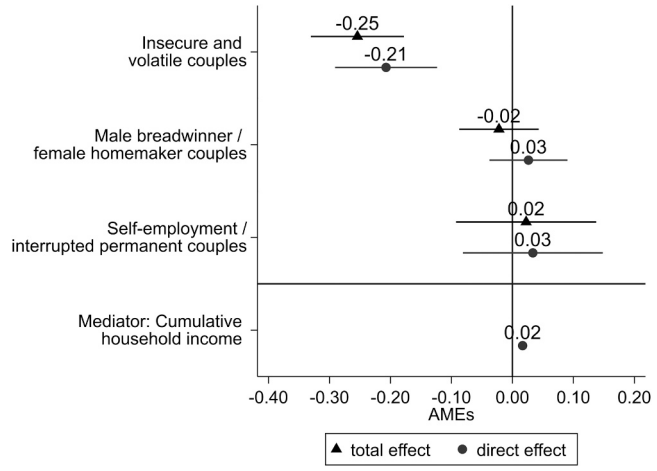

Fig. 2. Effect of couples' career trajectories on homeownership and cumulative income as a mediator for this effect. *Note*: Socio-Economic Panel, version 35, 1995–2018. Reference group consists of dual stable career couples. The lines through the point estimates represent the 95% confidence intervals. Effects of control variables are not included into the graph but can be found in Table 3 in the Appendix.

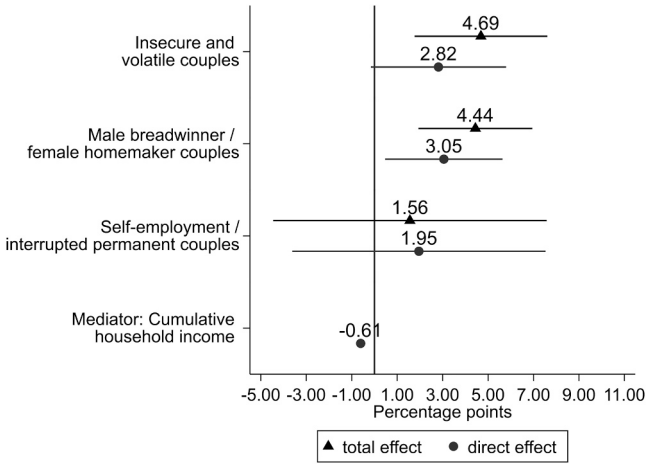

Fig. 3. Effect of couples' career trajectories on the share of income spent on rent and cumulative income as a mediator for this effect. *Note*: Socio-Economic Panel, version 35, 1995–2018. Reference group consists of dual stable career couples. The lines through the point estimates represent the 95% confidence intervals. Effects of control variables are not included into the graph but can be found in Table 4 in the Appendix.

significant .61 percentage points decrease in the share of income spent on rent.

Overall, prior cumulative income advantages reduce the share of income spent on rent, suggesting that prior income disadvantages also add up and negatively affect current shares of income spent on rent. The data on hand support our last hypothesis (H2b) that cumulative income (dis)advantages mediate the effect of insecure employment trajectories on the shares of income that couples spend on rent in early adulthood for *insecure and volatile* and *male breadwinner/female homemaker couples*. These findings support the notion that prior experiences with low quality jobs may have negative signalling effects on the subsequent career of couples in the *insecure and volatile* career cluster.

4.3. Sensitivity analyses

To test the sensitivity of the results, we conduct several sensitivity tests in two sets. The first set refers to the choice of measurement of career insecurity and the second set is related to the role of (cumulative) income and absolute rent prices.

4.3.1. Choice of measurement

To test the sensitivity of our clusters, we apply two other algorithms in addition to the OM approach, namely the Hamming distance and the Dynamic Hamming distance, which are more sensitive to timing differences between sequences than the OM approach (Studer & Ritschard, 2016). Both alternative algorithms (not presented) lead to very similar cluster solutions of couples' early career trajectories compared to the patterns we uncover with the OM approach. We also test the sensitivity of our results to the alternative of an index of sequence volatility, i.e., the index of turbulence (Halpin, 2017). This index considers the number of spells[3] in each (couple) sequence as a measure of career turbulence (see Table 5 in the Appendix for the distribution across clusters). Using the index of turbulence at the couple level as a predictor of housing outcomes leads to essentially similar results, namely that higher levels of turbulence lead to a lower likelihood of homeownership and a higher share of income spent on rent (not presented).

4.3.2. Role of (cumulative) income and rent prices

We introduce initial household income as an additional control variable in our regression models instead of including it in our measurement of cumulative income. This change in model specification produces somewhat smaller effects for the *insecure and volatile* career couple in the case of homeownership compared to the main model (Table 6 in the Appendix, models M1 and M2), however, results are very similar for the share of income spent on rent (Table 7 in the Appendix, models M1 and M2).

Additionally, to ensure that our findings on the share of income paid for rent are not driven by household income or rental prices per se, we estimate models where we include these two variables separately, measured in the seventh year. While the household income in later years reduces the share of income spent on rent by about 5 percentage points, couples with *insecure and volatile* careers still pay about 4 percentage points more of their income on rent (Table 7 in the Appendix, model M5). These findings reaffirm that cumulative household income is an important explanation for the higher shares of income paid for rent by couples with more insecure careers, beyond the impact of the current income. Accounting for rent price in the seventh year shows that rent itself only slightly increases the share of income spent on rent, while couples with *insecure and volatile* careers still spend over 3 percentage points more of their income on rent (Table 7 in the Appendix, model M6).

Finally, we examine the effect of cumulative income for each partner separately to see if one partner's contributions to cumulative household income are more important than the other's in explaining our results. For this individual measure of cumulative income, we consider only income from employment as well as unemployment and parental benefits and exclude all government transfers received at the household level (i.e., housing benefits). For homeownership, the results show that the male partner's cumulative income is much more important than the female partner's cumulative income both as a predictor of homeownership and in explaining the negative effect of career insecurity (Table 6 in the Appendix, model M1, M3, and M4). For the share of income spent

[3] Consecutive years in the same sequence state are considered as one spell, e.g., three years of unemployment (first spell), followed by two years of fixed-term employment (second spell), and another two years of unemployment (third spell), would be considered as three employment spells. We count the spells first separately for each partner and combine them in a second step to create the index at the couple level.

on rent, the results are different. Here, female partner's cumulative income is a more important predictor of the share of income paid for rent and for reducing the effect of career insecurity (Table 7 in the Appendix, model M1, M3, and M4). The male partner's cumulative income also has an impact, but in this case, it is not as important as the female partner's cumulative income.

Overall, our findings appear insensitive to other model specifications as well as other measures of early career insecurity in couples.

5. Discussion and conclusion

This paper reaffirms the previous literature by showing that job instability and insecurity, e.g., through fixed-term employment, lower the probability of homeownership (Baron & Rapp, 2019). We extend these findings by taking a life course perspective. We show that disadvantages in homeownership result from the accumulation of longer-term instable employment careers within couples. These cumulative disadvantages within early careers lead to significantly lower probabilities of homeownership compared to stable career patterns. Other couple career patterns do not appear to affect the probability of being homeowners. Thus, regarding homeownership, the double burden of instable careers experienced by both partners is more damaging than when only one partner has an insecure employment path.

Although income has been suggested as an important mediator in previous studies (Dotti Sani & Acciai, 2018; McGarth & Keister, 2008), we find that income plays a very small role in mediating the effect of early career on the probability of being homeowners. These results suggest that other channels, such as lower plannability or difficulty in obtaining credit, might play an even more important role for couples with insecure career trajectories.

We complement previous studies on the effects of employment status on homeownership (Baron & Rapp, 2019; Lersch & Dewilde, 2015; McGarth & Keister, 2008) by additionally accounting for shares of income spent on rent, an outcome that has been neglected so far by the literature (Backhaus et al., 2015). Even though Germany is still the prime example of people renting instead of buying a home, the share of renters is steadily increasing in all European countries (Arundel & Doling, 2017; Dotti Sani & Acciai, 2018). Therefore, the effects uncovered in this study may provide a glimpse into the future for other countries.

We show that career insecurity among couples significantly increases the share of income spent on rent. Not only does this mean that these couples have less money available for leisure activities that are important for ensuring well-being, but it may also be harder for them to save money to afford homeownership or build financial cushions. Previous literature suggests that income uncertainty is an important explanation for the decision to buy a home (Diaz-Serrano, 2005). We show that longer-term income instabilities or disadvantages are crucial in mediating the effects of career insecurity on the income spent on rent.

The fact that the most severe negative effects of couples' employment trajectories on housing are experienced by couples who are already most disadvantaged in terms of their career prospects (i.e., *insecure and volatile* couples) illustrates how disadvantages persist and even accumulate. Specifically, we uncover a double disadvantage experienced by couples with the most insecure careers. These insecure career couples are less likely to own a home in their early adulthood and more likely to rent, for which they have to spend a higher share of their income. Thus, our findings highlight the difficulties of already disadvantaged groups in catching up with advantaged dual stable career couples in terms of wealth accumulation. This finding is alarming in light of rising levels of social inequality and old-age poverty.

Despite the strengths of the present study, some limitations remain. Due to the choice of our study design and data restrictions, we cannot differentiate between very specific employment statuses such as specific forms of self-employment or atypical employment, or between less common career trajectories. We could not consider a more precise definition of our mediator, such as more holistic income trajectories, to reveal how cumulative income disadvantages arise. While our sensitivity analysis suggests differences in the role of gender in income contributions for the two outcomes, future research should more fully account for heterogeneity in employment statuses, as well as possibly gendered income trajectories to better understand how and for whom the mediator works in detail.

In addition, we face the problem that non-random panel attrition might bias our results. Since individuals who move frequently or experience periods of unemployment are more likely to drop out of panel studies such the SOEP (Siegers et al., 2020), we may underestimate the extent of career insecurity within couples. Our results could therefore be interpreted as conservative estimates of the relationship of career insecurity and housing situation, as we may not be observing couples with the most volatile careers in our sample.

Due to data limitations, we were also unable to analyze effects of early career trajectories on housing outcomes or financial well-being in retirement. Moreover, by focusing on Germany, we cannot investigate effects of employment trajectories from a country-comparative perspective to better understand the consequences of different housing market systems (Lersch & Dewilde, 2015). These open questions should be analyzed in future research by studying theoretically driven employment sequences and outcome dynamics over longer periods utilizing multilevel analyses for different countries.

Limitations aside, this paper advances our knowledge of longer-term consequences of (in)stable employment that go beyond income effects. We use multichannel sequence analysis that uncovers complex career patterns (Gauthier et al., 2010) and relate the career patterns to housing outcomes in later lives. Overall, this article shows that the effects of employment trajectories on housing outcomes depend on intertwined early career trajectories.

These findings suggest that studies focusing only on individuals' employment status or transitions may greatly underestimate the effects and associated costs of career insecurity. Moreover, this article broadens the focus from considering homeownership versus renting to include renting quality outcomes. We provide first results on the severe negative consequences of career (in)security on rent affordability. Our findings thus underline the various disadvantages of non-standard employment for individuals and the accumulation of disadvantages within couples.

Finally, our results imply that government benefits such as housing payments do not sufficiently mitigate the housing disadvantages of couples' insecure and volatile careers. Examining the mediating effect of more detailed income trajectories of couples as well as the longer-term consequences of the revealed housing inequalities, such as poverty, family formation, or health and well-being, could be useful for more holistic policymaking. A country-comparative perspective will help to improve our understanding of how different housing policies moderate these impacts.

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Conflicts of interest

The authors declare no potential conflict of interest with respect to research, authorship, and publication of this article.

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Appendix

Tables 1–7

Table 1
Descriptive statistics for control variables by couples' career trajectories.

	Dual stable career couples	Insecure and volatile couples	Male breadwinner/female homemaker couples	Self-employed/interrupted permanent couples
Highest education in household				
Primary and lower secondary	3.33	13.17	10.53	1.32
Upper secondary	48.05	54.49	52.63	50.00
Post-secondary, non-tertiary	14.33	8.98	11.76	11.84
Short tertiary	9.99	2.40	8.05	13.16
Tertiary	24.31	20.96	17.03	23.68
Males' migration background				
None	80.61	73.65	59.75	77.63
Direct or indirect	19.39	26.35	40.25	22.37
Females' migration background				
None	79.74	76.65	59.75	78.95
Direct or indirect	20.26	23.35	40.25	21.05
Sequence starts in				
East Germany	26.92	35.33	19.20	32.89
West Germany	73.08	64.67	80.80	67.11
Children in household				
No	60.20	52.69	40.87	51.32
Yes	39.80	47.31	59.13	48.68
Highest ISCO-88 of parents				
Major group 1: Managers	11.72	12.57	8.67	14.47
Major group 2: Professionals	18.38	25.15	17.65	23.68
Major group 3: Technicians and associate professionals	23.15	21.56	16.41	17.11
Major group 4: Clerical support workers	11.43	5.99	7.74	9.21
Major group 5: Service and sales workers	9.26	7.78	9.60	3.95
Major group 6 + 7: Skilled workers/craft and related trades workers	18.23	16.77	24.46	21.05
Major group 8 + 9: machine operators/ elementary occupations	7.81	10.18	15.48	10.53
Mean birth year males (SD)	1972.92 (6.53)	1977.39 (6.69)	1972.14 (6.73)	1971.91 (6.17)
Mean birth year females (SD)	1974.72 (6.68)	1979.01 (6.78)	1974.30 (6.90)	1974.41 (6.64)
Mean year of sequence start (SD)	2000.99 (6.10)	2003.45 (6.22)	1999.85 (5.76)	2000.43 (5.86)
Mean cumulative net household income (SD)	221904.56 (69545.89)	175788.57 (76036.50)	182731.28 (53579.55)	214203.79 (72734.02)
Total %	54.97	13.29	25.70	6.05
N	691	167	323	76

Note: Socio-Economic Panel, version 35, 1995–2018.

Table 2
Descriptive statistics for housing consequences by couples' career trajectories.

	Dual stable career couples	Insecure and volatile couples	Male breadwinner/ female homemaker couples	Self-employed/ interrupted permanent couples	Total % (N)
Homeownership					
No	49.18	19.67	26.09	5.05	100 (732)
Yes	63.05	4.38	25.14	7.43	100 (525)
Income share spent on rent (SD)	25.96 (13.67)	28.50 (14.94)	32.16 (14.78)	28.02 (17.92)	(688)*

Note: Socio-Economic Panel, version 35, 1995–2018, *44 (732–688 = 44) renters did not give information on their rent, they were not dropped form the analysis on homeownership to increase sample size. Results are largely the same when they are dropped.

Table 3
Results of the logistic regression of homeownership, AMEs.

	Null Model	+ Control variables	+ Mediator	Δ total/direct effect
	AME (*z-value*)	*AME* (*z-value*)	*AME* (*z-value*)	*AME* (*z-value*)
Couples' career trajectories				
Ref.: Dual stable career couples				
Insecure and volatile couples	-0.34***	-0.25***	-0.21***	-0.04***
	(−10.42)	(−6.52)	(−4.85)	(−3.44)
Male breadwinner/female	-0.07**	-0.02	0.03	0.05***
homemaker couples	(−2.11)	(−0.66)	(0.81)	(2.73)
Self-employed/	0.03	0.02	0.03	0.01
interrupted permanent couples	(0.57)	(0.38)	(0.57)	(0.46)
Controls				
Highest education in household				
Ref.: Primary and lower secondary				
Upper secondary		0.23***	0.22***	
		(4.25)	(3.69)	
Post-secondary, non-tertiary		0.24***	0.22***	
		(3.66)	(3.24)	
Short tertiary		0.45***	0.40***	
		(6.17)	(5.29)	
Tertiary		0.22***	0.13**	
		(3.54)	(2.05)	
Females' migration background				
Ref.: None				
Direct or indirect		0.02	0.02	
		(0.52)	(0.43)	
Males' migration background				
Ref.: None				
Direct or indirect		-0.07	-0.06	
		(−1.53)	(−1.40)	
Location at sequence start				
Ref.: East Germany				
West Germany		0.07**	0.01	
		(2.38)	(0.34)	
Children in household				
Ref.: No children				
Children		-0.01	0.01	
		(−0.27)	(0.24)	
Highest ISCO-88 of parents				
Ref.: Major group 1: Managers				
Major group 2: Professionals		-0.06	-0.06	
		(−1.34)	(−1.15)	
Major group 3: Technicians and associate professionals		0.03 (0.66)	0.04 (0.91)	
Major group 4: Clerical support workers		-0.04 (−0.64)	-0.02 (−0.28)	
Major group 5: Service and sales workers		-0.06 (−1.01)	-0.03 (−0.50)	
Major group 6 + 7: Skilled workers/craft and related trades workers		-0.02 (−0.33)	0.02 (0.39)	
Major group 8 + 9: machine operators/		-0.06	-0.03	
elementary occupations		(−0.93)	(−0.51)	
Birth year males		-0.03***	-0.02***	
		(−4.55)	(−3.77)	
Birth year female		-0.01	-0.00	
		(−1.39)	(−0.48)	
Year of sequence start		0.03***	0.02***	
		(5.43)	(2.62)	
Mediator				
Cumulative net household income			0.02***	
(in 10.000 Euros)			(6.32)	
N	1257	1257	1257	

Note: Socio-Economic Panel, version 35, 1995–2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 4
Results of the linear regression of the income share spent on rent.

	Null Model β (*t-value*)	+ Control variables β (*t-value*)	+ Mediator β (*t-value*)	Δ total/direct effect β (*z-value*)
Couples' career trajectories				
Ref.: Dual stable career couples				
Insecure and volatile couples	2.54*	4.69***	2.82*	-1.87***
	(1.75)	(3.15)	(1.86)	(−2.52)
Male breadwinner/female	6.20***	4.44***	3.05**	-1.39***
homemaker couples	(4.67)	(3.48)	(2.32)	(−1.96)
Self-employed/	2.06	1.56	1.95	0.39
interrupted permanent couples	(0.76)	(0.51)	(0.69)	(−0.59)
Controls				
Highest education in household				
Ref.: Primary and lower secondary				
Upper secondary		-3.06*	-2.79	
		(−1.73)	(−1.63)	
Post-secondary, non-tertiary		-5.19**	-5.30***	
		(−2.49)	(−2.61)	
Short tertiary		-5.85**	-4.87*	
		(−2.03)	(−1.75)	
Tertiary		-5.42***	-2.16	
		(−2.58)	(−1.03)	
Females' migration background				
Ref.: None				
Direct or indirect		-1.88	-1.74	
		(−1.11)	(−1.08)	
Males' migration background				
Ref.: None				
Direct or indirect		0.65	-0.03	
		(0.39)	(−0.02)	
Location at sequence start				
Ref.: East Germany				
West Germany		0.40	2.14*	
		(0.33)	(1.73)	
Children in household				
Ref.: No children				
Children		4.37***	3.82***	
		(3.60)	(3.19)	
Highest ISCO-88 of parents				
Ref.: Major group 1: Managers				
Major group 2: Professionals		3.15*	2.71	
		(1.81)	(1.62)	
Major group 3: Technicians and associate professionals		1.63	0.78	
		(1.00)	(0.50)	
Major group 4: Clerical support workers		3.74	2.84	
		(1.53)	(1.20)	
Major group 5: Service and sales		2.78	1.22	
workers		(1.41)	(0.62)	
Major group 6 + 7: Skilled workers/craft and related trades workers		3.40*	1.95	
		(1.91)	(1.14)	
Major group 8 + 9: machine operators/		3.76	2.31	
elementary occupations		(1.58)	(1.01)	
Birth year males		0.05	-0.11	
		(0.23)	(−0.49)	
Birth year female		-0.19	-0.35	
		(−0.81)	(−1.52)	
Year of sequence start		-0.74***	-0.24	
		(−3.13)	(−1.00)	
Mediator				
Cumulative net household income			-0.61***	
(in 10.000 Euros)			(−5.74)	
N	688	688	688	

Note: Socio-Economic Panel, version 35, 1995–2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 5
Average number of spells in individual and couple sequences.

	Overall average (SD)	Average per cluster (SD)			
		Dual stable career couples	Insecure and volatile couples	Male breadwinner/female homemaker couples	Self-employed/interrupted permanent couples
Male partner	2.09	1.84	3.32	1.97	2.08
	(1.38)	(1.25)	(1.35)	(1.37)	(1.23)
Female partner	2.75	2.71	3.16	2.64	2.72
	(1.39)	(1.34)	(1.36)	(1.49)	(1.32)
Couple	4.84	4.56	6.48	4.61	4.80
	(2.10)	(1.89)	(2.06)	(2.23)	(1.86)

Note: Socio-Economic Panel, version 35, 1995–2018.

Table 6
Summary of sensitivity checks for the effect of couples' career trajectories on homeownership.

	M1 *AME* (*z-value*)	M2 *AME* (*z-value*)	M3 *AME* (*z-value*)	M4 *AME* (*z-value*)
Insecure and volatile couples	-0.25*** (−6.52)	-0.21*** (−4.87)	-0.22*** (−5.05)	-0.25*** (−6.23)
Male breadwinner/female homemaker couples	-0.02 (−0.66)	0.00 (0.05)	-0.04 (−1.16)	-0.02 (−0.53)
Self-employed/interrupted permanent couples	0.02 (0.38)	0.04 (0.62)	0.01 (0.10)	0.02 (0.39)
Initial income		0.09*** (3.28)		
Male cumulative income			0.02*** (7.61)	
Female cumulative income				0.00 (0.08)
Control variables?	✓	✓	✓	✓
N	1257	1257	1257	1257

Note: Socio-Economic Panel, version 35, 1995–2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reference group consists of dual stable career couples. The set of included control variables refer to the respective control variables of the model in Table 3, but coefficients are not displayed here, M1 equals the main model (Fig. 2).

Table 7
Summary of sensitivity checks for the effect of couples' career trajectories on the share of income spent on rent.

	M1 β (*t-value*)	M2 β (*t-value*)	M3 β (*t-value*)	M4 β (*t-value*)	M5 β (*t-value*)	M6 β (*t-value*)
Insecure and volatile couples	4.69*** (3.15)	4.73*** (3.12)	3.33** (2.20)	2.92* (1.91)	3.60** (2.52)	3.34*** (2.90)
Male breadwinner/ female homemaker couples	4.44*** (3.48)	4.45*** (3.47)	4.87*** (3.84)	1.66 (1.08)	2.84** (2.25)	3.10***(3.64)
Self-employed/ interrupted permanent couples	1.56 (0.51)	1.55 (0.50)	2.34 (0.80)	0.76 (0.24)	3.66 (1.42)	-0.82 (−0.34)
Initial income		0.10 (0.18)				
Male cumulative income			-0.45*** (−4.80)			
Female cumulative income				-0.61*** (−4.21)		
Income year 7					-4.63*** (−9.11)	
Rent price year 7						0.03*** (16.47)
Control variables?	✓	✓	✓	✓	✓	✓
N	688	688	688	688	688	688

Note: Socio-Economic Panel, version 35, 1995–2018. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. Reference group consists of dual stable career couples. The set of included control variables refer to the respective control variables of the model in Table 4, but coefficients are not displayed here, M1 equals the main model (Fig. 3).

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