

The changing association between homeownership and the transition to parenthood

Abstract

The literature suggests a positive link between homeownership and transition to parenthood. However, in recent decades, the preference of couples for becoming homeowners before having their first child has been undermined by rising housing unaffordability and housing uncertainty. Britain is an archetypal example, with homeownership rates among young adults having fallen substantially as a result of low wages, unemployment, reductions in the availability of mortgage credit, and rising house prices. This has produced a housing crisis. Using longitudinal data from the British Household Panel Survey (1991–2008) and the United Kingdom Household Longitudinal Study (2009–2016), we applied multilevel discrete-time event-history techniques to a sample of women aged 18–42. We investigated whether and how the link between homeownership and entering parenthood has changed in Britain in recent decades. Our findings revealed that, in comparison to the 1990s, the likelihood of becoming a parent has declined among homeowners, while childbearing rates among private renters have remained stable. Thus, owner-occupiers and private renters have become more similar in terms of their likelihood of entering parenthood. Overall, our findings question the classical micro-level assumption of a positive link between homeownership and transition to parenthood, at least among Britain’s “Generation Rent.” These findings are subsequently interpreted in terms of increased housing uncertainty.

Keywords: housing tenure, transition to motherhood, Britain, event-history analysis, panel data, multilevel models

Introduction

Substantial attention has been devoted to the impact of rising economic uncertainty on life transitions (Mills and Blossfeld 2013). The Great Recession, which engendered downturns in financial and labor market fortunes beginning in 2008, intensified interest in understanding how economic conditions affect childbearing (e.g. Alderotti et al. 2019; Barbieri et al. 2015; Kreyenfeld et al. 2012; Vignoli et al. 2019). However, housing conditions have been frequently overlooked, despite existing studies on the link between homeownership and family formation (e.g. Mulder 2006a, 2006b; Mulder and Billari 2010) suggesting that young adults prefer to be homeowners before having children (Feijten and Mulder 2002; Kulu and Steele 2013; Mulder and Wagner 1998, 2001), that homeownership carries emotional value for many people (Saunders 1990), and that housing security and housing stability are important prerequisites for family formation (Kulu and Milewski 2007; Vignoli et al. 2013).

In this context, dramatic changes to housing markets in many high-income countries are of significant interest. Property and rental prices have increased considerably—albeit with some temporary declines during the global financial crisis—and mortgage credit access became more restrictive after 2008, especially in countries such as the UK, Netherlands, and Denmark, countries which previously demonstrated lenient borrowing practices (Lennartz et al. 2016). Combined with progressively uncertain job markets, these trends have reduced housing affordability and increased levels of housing uncertainty. Housing uncertainty can be characterized as insecurity regarding where an individual will reside and under what conditions. Uncertainty may arise for owner-occupiers due to the fear of eviction resulting from mortgage default, which is usually an effect of other financial and employment-related uncertainties and the need to maintain an (often dual) income to service a mortgage. For private renters, uncertainty might arise from the threat of eviction (by landlords in the context of fixed-term tenancies), unregulated increases in rental prices, the lack of rights regarding property maintenance and enhancement, and the perceived inability to call a house a home and be able to “settle down” (Hoolachan et al. 2017). Thus, housing uncertainties figure notably in the transition to parenthood. In many countries, entrance into the housing market has become increasingly difficult for low-income earners, especially young people (Arundel and Doling 2017). Housing unaffordability and general housing uncertainty may prevent individuals from both owning a home and starting a family (Mulder 2006b).

In this paper, we posit that the positive association between homeownership and fertility identified by earlier studies is changing due to increasing housing uncertainty. Despite homeownership remaining a preferred setting for parenthood, the costs associated with homeownership increasingly compete with the direct and indirect costs of childbearing and childrearing (Becker 1991). We explore the links between homeownership and transitioning to

motherhood in Britain between the early 1990s and 2016. In Britain, house prices have been increasing dramatically since the early 1990s, with declining homeownership and increased private renting among young adults having been much more pronounced than in other countries (Lennartz et al. 2016) and for other age groups. We focus on first childbirth because it marks the entry into parenthood that is being postponed or forgone; that is, couples entering parenthood in the UK usually have (at least) another child (Berrington et al. 2015). Using longitudinal data from the eighteen waves of the British Household Panel Survey (BHPS), in combination with data from the first seven waves of Understanding Society, the UK Household Longitudinal Study (UKHLS), we document a change in the traditional micro-level assumption of a positive link between homeownership and the transition to parenthood. The changing association between homeownership and parenthood is observed to persist after controlling for the changing socio-economic and demographic characteristics of people in different housing tenures over time and considering any moderating effect of local house prices.

Background

Homeownership, private renting, and entry into parenthood

Analyzing the link between homeownership and fertility is complicated by the reciprocal nature of the relationship (Mulder and Wagner 2001; Holland 2012). For example, while starting a family can influence subsequent housing choices, some individuals postpone childbearing until finding the right home (Murphy and Sullivan 1985). Based on a UK sample, Ermisch and Steele (2016) demonstrated that expecting to have a(nother) child increases the probability of moving, while Kulu and Steele (2013), using Finnish data, simultaneously modeled conceptions and housing moves, finding evidence in support of a joint process.

Microeconomic approaches reveal having more economic resources may positively impact fertility (Becker 1991). Nonetheless, while previous studies have focused extensively on the role of income, education, and employment, housing has been ignored or downplayed as a potential economic resource. Those studies suggest that the effect of property ownership on fertility may be either positive or negative.

A positive link between homeownership and fertility is usually presumed: access to a suitable home leads couples to have children earlier (Castiglioni and Zuanna 1994; Krishnan and Krotki 1993; Mulder and Wagner 2001). In most societies, homeownership represents a key asset and source of stability in people's lives, providing secure tenure and generally guaranteeing future consumption (Vignoli et al. 2016). Compared with rented homes, owner-occupied homes are generally more spacious and adaptable to a household's needs, providing better housing conditions for starting a

family (Mulder and Smits 1999; Ricci 1997).

There is considerable empirical support for a link between homeownership and family formation at the macro, meso, and micro levels (Clark and Mulder 2000; Clark and Withers 2007; Fiori et al. 2014; Mulder and Wagner 1993). Mulder and Billari (2010) argue that macro-level fertility is associated with the share of owner-occupied housing and mortgage accessibility. In countries with high homeownership levels—namely, the “easy” and “difficult” homeownership regimes—fertility is higher if access to mortgages is easier. In contrast, in countries with lower levels of homeownership—namely the “career” and the “elite” homeownership regimes—fertility and access to mortgages are unrelated (Mulder and Billari 2010). At the meso level, owning a home provides the stability, safety, and access to services that are critical to raising a family. According to Clark (2012), “ownership neighborhoods” provide better access to schools and various urban amenities than “rental neighborhoods.” At the micro level, couples may prefer to secure housing of a certain quality before they have children (Mulder 2006a; Pinnelli 2020). Evidence that homeownership may be a prerequisite for childbearing has been found in the Netherlands (Feijten and Mulder 2002), West Germany (Mulder and Wagner 2001), and the US (Deurloo et al. 1994).

However, there can be a negative link between homeownership and fertility if the cost of purchasing a house competes with the cost of childbearing and childrearing (Hakim 2003; Murphy 1984). Such a situation may lower or postpone fertility among those who attach great importance to becoming a homeowner, as has been found in France (Courgeau and Lelièvre 1992). Meeting the financial demands of both homeownership and a child may not be possible because of an unstable employment situation for one or both partners. Job loss and other employment-related uncertainties impact the ability of individuals to repay their mortgage and other types of loans. For women, in particular, employment-related uncertainties are especially common around childbirth, when extended periods of maternity leave or discrimination might engender pay cuts, or personal preferences might promote a shift from full-time to part-time employment. Discussing Britain, Hakim (2003) suggests that the attraction of homeownership and the associated financial burdens of mortgages have increased employment among women in recent decades, especially work-orientated women.

Local variation in housing affordability and availability is also likely to moderate the association between housing tenure and first births. If the housing market can provide good housing at a reasonable price, it is easier to become a homeowner before becoming a parent (Öst 2011). However, difficulties accessing homeownership may delay co-residential partnership and childbearing (Castiglioni and Zuanna 1994; Krishnan and Krotki 1993; Pinnelli 2020). Although the impact of local house prices on fertility has rarely been addressed, there are some examples. Sato

(2007) illustrated how, in Japan, large city sizes were characterized by high land prices and lower fertility. Simon and Tamura (2009) documented a negative correlation between high rents and fertility in the US between 1940 and 2000. Clark (2012) examined the links between age at first birth and the cost of housing—measured by rent or sale price—in the US for the period 2006–2008, finding that being in an expensive housing market delays first births by three to four years, net of other confounders.

In recent decades, particular attention has been devoted to the impact on fertility of rising uncertainty (Mills and Blossfeld 2003, 2013). The pioneering work of Kohler, Billari, and Ortega (2002) advanced that couples in the lowest-low fertility countries have limited their childbearing due to mounting levels of economic uncertainty. Other researchers have found that, given childbearing and childrearing are resource-intensive, such a long-term commitment tends to be postponed when people face uncertainty (Blossfeld et al. 2005, 2006; Blossfeld and Hofmeister 2006; Mills and Blossfeld 2013). Uncertainty regarding future residential location makes it difficult to plan and secure future access to formal childcare and schools. Elsewhere, it has been emphasized how having legal control over a property and being able to call a dwelling “home” are important components of wellbeing (Easthope 2014; Hoolachan et al. 2017). Accordingly, we posit that housing uncertainties are likely to postpone childbearing and should, therefore, be considered in future childbearing studies.

Housing and family formation in Britain

In Britain, there are three main types of housing tenure. Homeownership is the most common across all age groups and is usually acquired through a mortgage loan after the payment of an initial deposit. Homeownership grew steadily during the 1980s and 1990s (ONS, 2016c), promoted by government policies associated with an “ideology of homeownership.” (Ronald 2008) Subsequently, homeownership rates among young adults plummeted, declining from 46% of 25- to 29-year-olds in 1996 to 25% in 2016 (Cribb et al. 2018). Numerous factors are responsible, including the increase in house prices coupled with stagnating or declining wages and employment security. The median price paid for residential property in England and Wales increased by 259% between 1997 and 2016; in the same period, median individual annual earnings increased by 68% (ONS 2017a), resulting in greater income multiples for mortgage lending (Udagawa and Sanderson 2017). These trends were compounded by the restrictions on mortgage credit from 2008, which nearly doubled the average mortgage deposit, from around 13% of the purchase price in 1991 to 22% in 2014 (ONS 2016). Over a third of first-time buyers in England in 2013/2014 asked family for a financial gift or loan to help them buy their home; the proportion was around a fifth in the early 1990s (Udagawa and Sanderson

2017).

For those who could not afford homeownership in Britain between the 1950s and 1970s, household and family formation were supported by the availability of social rented housing, which was perceived as more secure and more suitable for childrearing than the private rented sector (Di Salvo and Ermisch 1997; Ineichen 1981; Murphy 1984; Murphy and Sullivan 1985). However, beginning in the early 1980s, social housing stock has decreased due to fewer publicly supported new builds coupled with policies which allowed social tenants to purchase their homes at a discounted price (Berrington and Stone 2014). The sector has now become *residualized*, only available to childless individuals in priority need, such as those who are living without a home or with health problems. Consequently, more low-income individuals have entered the private rental sector.

The private rental sector in Britain has become an increasingly important tenure type for all income groups. Historically, private renting was seen as a “transitional tenure,” which fulfilled an individual’s needs before s/he was able to move into their “permanent tenure”—either owner-occupation or social housing (Hoolachan et al. 2017). However, more young people have been renting recently. For example, 48% of English 25- to 34-year-olds were renting privately in 2013/2014, twice the percentage of a decade before. In public discourse, this generation has been labeled “Generation Rent,” (Cole et al. 2016; Coulter 2016; McKee 2012) because its members continue to rent into their thirties, the time at which family formation typically occurs. In other European countries, private rented accommodation is highly regulated; however, tenants in Britain have very few rights. An example of private renting’s particular insecurity is how assured shorthold tenancies mean that the landlord can ask tenants to leave, without giving a reason, upon meeting the initial contract period, which is usually six or twelve months (Clapham et al. 2014).

Homeownership traditionally preceded or coincided with an individual establishing their first co-residential union (Mulder 2006b). However, the lack of affordable homes, decreasing availability of social renting, and rising house prices have made private renting the only affordable solution for many young adults who live independently (Lennartz et al. 2016; Rugg 2010). As such, it would seem likely that the relationship between homeownership and family formation in Britain has been altered.

Mulder and Billari (2010) included Britain in the category of “career homeownership” regimes, meaning homeownership is linked to gaining a sufficient and stable income and is acquired via a mortgage. Accompanying this, homeownership in Britain was seen as a preferred setting for parenthood, with evidence from the 1990s and 2000s showing significantly higher first-birth rates for homeowners compared to private renters (Fiori et al. 2014). However, following subsequent changes to the housing market, Britain may be moving to the category of “elite” homeownership regimes, where mortgages are no longer widely accessible and homeownership is a prerogative for only those

who are wealthier, confident of retaining their job (to be able to pay their mortgage), and maintain a strong preference for homeownership, even if this means postponing or forgoing childbearing. Nonetheless, the UK still seems to be a “career” homeownership regime in terms of social norms, with aspirations for homeownership remaining strong across the country (Pannel 2016). Consequently, homebuyers may be postponing or forgoing parenthood because the costs of housing deposits and mortgage payments compete with the costs of parenthood.

In the context of Europe, childbearing levels are relatively high in Britain, with the total fertility rate trend somewhat different from that of other Western countries (Comolli 2017). For example, in England and Wales, the total fertility rate has fluctuated in recent decades, declining from 1.81 in 1992 to 1.63 in 2003, before increasing steadily to 1.94 in 2012, and then declining to 1.70 in 2018 (ONS 2019). As in most developed countries, the mean age at first birth has risen (from 25.6 in 1991 to 28.8 in 2016) (ONS 2017b). However, these averages obscure considerable differences in the changing age profile of childbearing women according to socio-economic status. While British women with low educational level still tend to begin childbearing in their teens and twenties, graduates are more likely to wait until their late twenties and early thirties (Berrington et al. 2015). Early childbearing in lower socio-economic classes means that, unlike in many other European countries, fertility rates for women under 25 remained reasonably high and stable until they began to reduce in 2010 (ONS 2019).

Research questions

To investigate whether and how the link between housing tenure and first birth has changed in Britain in recent decades, we have addressed the following research questions.

First, we asked: *Has the association between homeownership and the probability of conceiving the first child changed since 1991?*

Conscious that the association between homeownership and entry into motherhood might change over time because of compositional changes (see, e.g. Fisher and Gervais 2011), we wanted to test whether results from our first research question were robust to the inclusion of a series of controls.

Accordingly, our second research question asked: *Is this change explained by the socio-economic and demographic characteristics of women in the different housing tenures?*

Finally, there is growing concern that young people’s ability and inclination to form a family may be constrained by increasing house prices making homeownership broadly unaffordable. However, house prices vary geographically (Bayrakdar and Coulter 2017), requiring acknowledgment and consideration of if and how within-country differences in local housing markets

influence the transition to parenthood. To do this, we merged the individual prospective data with time-varying area-based house price data measured at the Local Authority District (LAD) level.

Accordingly, our third and final research questions was: *To what extent does the relationship between homeownership and the probability of conceiving the first child differ according to local house prices?*

Data and methods

Data

The study used data from the BHPS spanning 1991–2008 and the UKHLS for the period 2009–2016 (University of Essex Institute for Social and Economic Research 2018), including information from the Consolidated Marital, Cohabitation and Fertility Histories data set (Pronzato 2011). Both the BHPS and the UKHLS are nationally representative surveys based on a prospective panel design, which provide an outstanding basis for the empirical analysis of the first motherhood–housing nexus. Taking a longitudinal approach, we considered a sample of women who were childless at the time of their first interview and followed them for at least three consecutive waves. Women who joined the BHPS sample and were continuously interviewed until wave 18 in 2008, if still childless, continued to be followed in the UKHLS¹ (Fumagalli et al. 2017). We were not able to examine the childbearing behavior of men because information about past childbearing was not collected directly within the BHPS panel questionnaires. We relied on the household grid to identify when a child was born. Given a quarter of young fathers are not living with their children in the UK (Berrington and Stone 2014), estimates based on the household grid are incomplete for men.

Our sample comprised women aged 18–42 living independently of their parental home (i.e., their housing tenure does not represent that of their parents). We excluded 20 women who had adopted, fostered, or had stepchildren before conceiving their first natural child². We did not focus solely on couples but included all women; that is, we considered all births, including those to single mothers. This is important in the British context, where a relevant minority of births are to unpartnered women. We focused on Britain rather than the UK because information on local housing markets at the LAD level was unavailable for Northern Ireland for much of the historical period. While the UKHLS ethnic boost sample from wave 1 was included, we excluded the recent immigrant boost sample because that started in 2014/2015. Ultimately, the total sample comprised 5,082 women born between 1948 and 1997 (for a total of 17,371 person-years) residing in 374 different districts of

¹ Women interviewed in the BHPS until wave 18 were interviewed in the UKHLS starting from its second wave in 2010/2011.

² Although adopted children, fostered children, and stepchildren compete for space in a household as do natural children, we did not have information on the date of adoption, fostering, or when the stepchild began living with the respondent.

Britain. Each woman was observed for an average of 3.6 years, ranging from one person-year to 23 person-years. There were 1,296 first-birth conceptions, of which just over 5% were to single mothers.

Survey weights for the cross-sectional sample at each panel wave³, calculated by the BHPS and the UKHLS survey teams (Knies 2018), were used to account for initial non-response and attrition from the sample over time. Non-responses and sample attrition were higher for the first seven waves of the UKHLS than they were for the BHPS. Young adults who were unemployed, living in urban areas, or living in privately rented housing were more likely to have been lost to follow up. Nonetheless, weighted fertility rates based on the BHPS and the UKHLS were similar to those collected by the vital registration system, with a slight tendency for rates of childlessness to be underestimated (Berrington et al. 2015; Kulu and Hannemann 2016). As such, these two harmonized panels provide an unparalleled opportunity to examine the changing relationship between housing tenure and childbearing in Britain.

Method

The transition to parenthood was studied using a multilevel logistic discrete-time event-history model with random intercept (Barber et al. 2000), with person-years nested within LADs. The baseline hazard was the woman's age, which was grouped into four categories: 18–24, 25–29, 30–34, and 35–44. Whether women entered the sample when first interviewed or after their 18th birthday, it was after beginning living independently from parents. The event of interest was the woman's first conception leading to a live birth. Women were censored at the last available wave, when they attrited from the survey, when they returned to the parental home, or when they reached the age of 44, whichever occurred first. Overall, the two-level discrete time logit model has the following form:

$$\text{logit}(h_{ijt}) = \alpha D_{ijt} + \sum_{p=1}^P \beta_p X_{pijt} + \gamma Z_{jt} + \delta_j \quad (1)$$

where h_{ijt} is the hazard of conceiving a first child for woman i in LAD j at time t ; D_{ijt} is a step function representing the baseline hazard function (namely, woman's age divided in four time intervals); X_{pijt} is the p -th individual-level covariate for woman i in LAD j , which can vary over time (i.e., housing tenure) or remain constant (i.e., if a woman is born outside the UK); Z_{jt} is an LAD-level covariate, namely the lower-quartile of the house prices (in RQ#3 only), which varies over time; and finally δ_j is the random effect for LAD j (Barber et al. 2000; Browning et al. 2004). We assumed that the random intercept was normally distributed, with zero mean and unknown variance; this would

³ We used cross-sectional weights because the longitudinal weights were only valid for those who had responded to all of the previous waves.

represent the unobserved heterogeneity of the LADs upon including all individual- and LAD-level covariates in the model.

Analytical strategy

Our first research question asked whether the association between housing tenure and the probability of conceiving a first child changed between 1991 and 2016. To answer this question, in the first model (Model 1), the key explanatory variable was the woman's current housing tenure, which distinguishes between homeownership⁴, private renting, and social renting. Housing tenure, like all the explanatory covariates, lagged by one year. It was included in the model in interaction with the survey year, which was grouped into four periods: 1991–1999, 2000–2007, 2008–2012, and 2013–2016. The cut-off points for each period were chosen to reflect the timing of changes in the British housing market. The 1990s witnessed a sharp increase in house prices (which continued until 2007); during the 2000s, the private rental sector saw a marked increase; 2008 signaled the start of the Great Recession, during which house prices fell; and 2013 marked the beginning of the post-crisis period, during which house prices started to increase again (ONS 2017a: see the supplementary material online). We also included a term representing the interaction between a woman's age and her current housing tenure; this enabled capturing the changing role of tenure across the woman's life course and the social polarization of childbearing timing.

Our second research question asked whether any changes observed in the association between homeownership and fertility over time could be explained by the changing socio-economic and demographic characteristics of individuals or their household residing in a different tenure group. To achieve this, we used a second model (Model 2), which included socio-economic and demographic covariates through a stepwise procedure. We added the woman's partnership status (single, married, or cohabiting) and her education level. Partnership formation was a proximate determinant of childbearing, with homeowners more likely to be in a partnership, likely because a dual income and long-term commitment are often precursors to purchasing a house. Educational attainment contrasted those with a low education level (those with a secondary education who left school at 16) with those with a medium education level (who had obtained advanced qualifications, such as nursing or teaching qualifications), and those with a high education level (typically those with a first or higher degree). Given more educated women demonstrate lower rates of childbearing at a younger age, and higher rates at an older age (Berrington et al. 2015), we interacted education to baseline duration (i.e., woman's age)⁵.

⁴ Homeownership means that the house is owned by a household member.

⁵ Although we also tested a triple-interaction effect for calendar period, age group, and housing tenure, this was dropped because it was not significant.

We added economic activity (full-time student, employed, unemployed, or inactive), followed by equivalized income categorized in quintiles⁶ (derived from the annual household income and adjusted to consider the number of household members using the modified OECD equivalence scale; see Hagenaars et al. 1994). Additional control variables included whether the woman was foreign-born, parental social class (either or both of mother and father's highest class according to the National Statistics Socio-economic Classification, which features five categories: management and professional; intermediate; small employers and own account; lower supervisory and technical; and semi-routine and routine; Rose and Pevalin 2003), and an overcrowding index (a household was considered overcrowded if the total number of people in the household exceeded the number of rooms). Finally, we added time since moving into the current dwelling (zero for those who had moved that year, and then one year, two years, or three years or more). This variable was designed to capture the pre-childbearing anticipatory household moves that have been previously found in the literature (Ermisch and Steele 2016; Kulu and Steele 2013). In sensitivity analyses (not presented) we interacted these anticipatory moves with tenure but found that the effect was similar across tenure-type groups^{7,8}.

Our third research question explored how the housing market context shaped the probability of having a first conception while privately or socially renting compared to owning and occupying. For Model 3, in addition to the controls included in Model 2, we added a cross-level interaction term between house prices—measured at the LAD level—and housing tenure to allow the effect of housing tenure to vary according to neighborhood labor market characteristics. The measure of house price chosen was the value of a lower-quartile house price for each LAD; that is, the price of the 25th percentile of house prices in a given LAD for a year. The statistics for lower-quartile house prices have been part of the House Price Statistics for Small Areas release (ONS 2017c) for England and Wales since 1995. For Scotland, annual statistics on lower-quartile house prices for a range of sub-national geographies have been released since 1993 (Scottish Government 2017)⁹. First-time buyers are generally not able to afford houses with as many bedrooms and square meters as the average house sold in the area. For each year, using the distribution of the lower-quartile house prices in the

⁶ We tested whether the association between homeownership and fertility differed according to household income. However, the interaction between housing tenure and income quintiles was not significant.

⁷ We did not control for duration of employment because we only had information about employment at the time of interview for each wave (employment history was only asked about in a few waves).

⁸ One might argue that it would have been important to control for partnership duration to control for the changing composition of women across tenure groups. We deliberately abstained from including such a variable because preliminary analyses verified that it would introduce substantial selection effect; that is, increased time being childless in a co-residential relationship lowers probability of having a child.

⁹ For England and Wales, the 1995 house price data were also used for 1991–1994. For Scottish districts, the 1993 house price data were also used for 1991–1992. See the supplementary online material for descriptives regarding lower-quartile house prices in England, Wales and Scotland for the period considered.

different LADs, we created a categorical variable splitting the distribution into quintiles, enabling measurement of whether a lower-quartile house price in a given LAD is, nationally, in the cheapest 20% (the first quintile included, for example, areas within Liverpool and Nottingham), the most expensive 20% (fifth quintile included, for example, the Kensington and Chelsea boroughs of London and Oxford), or in between (for a given year). This measure's range increased markedly over the study period, with house prices in London accelerating at a faster rate than in other areas.

All interaction terms were tested using likelihood ratio tests, which compared the model with the interaction term to the model considering only the main effects. They all proved significant, with the exception of the interaction between tenure and calendar period (first research question) and the interaction between tenure and house prices (third research question). Nonetheless, we have retained them to answer our research questions.

Descriptive statistics

Table 1 shows the person-years distribution of socio-economic and demographic characteristics according to housing tenure. Owner-occupiers tended to be older and more likely to be married than private or social renters. Although educational attainment among homeowners and private renters was similar, social renters tended to be less educated. While the vast majority of childless homeowners were employed, a high proportion of private renters were still involved in education. The selection of particularly vulnerable (childless) women into social housing was reflected by the fact that around one-third of the person-years of social renters were characterized as unemployed or not economically active. While homeowners dominated the top two income quintiles, private and social renters were more prevalent among the two lowest income quintiles. Homeownership was associated with larger properties, with two-thirds the person-years of both social and private renters spent in overcrowded households, compared to just one-third of owner-occupiers.

Private renting was associated with greater levels of mobility. While 71.5% of person-years were categorized as owning a home in 1991–1999, this had dropped to 56.3% by the period 2013–2016. Contextually, private renters increased from constituting 21.7% of person-years in the period 1991–1999 to 35.4% in the period 2013–2016. Further analyses of how the composition of tenure groups changed over the 25-year period (available in the supplementary online material) show that, during the 2010s, private renting also became widespread among older age groups. Meanwhile, homeownership, initially widespread across all education groups, has recently become dominated by the highly educated, with social renting becoming increasingly dominated by those with the lowest levels of educational attainment. Finally, bivariate analysis of the number of conceptions according

to age group and calendar period reassures about the number of events in each cell of the contingency table.

(Table 1 here)

Results

To aid interpretation, we estimated predicted annual probabilities of conceiving a first child¹⁰ for each hazard model and presented them graphically. Full model results are presented in Appendix Table 2.

Figure 1 shows the predicted annual probability of conceiving a first child according to housing tenure and calendar period (Model 1). The predicted annual probability was significantly higher for mothers who were homeowners compared to those who were private renters in the first three periods (i.e., until 2012). However, in the last period (2013–2016), the confidence intervals for homeowners and private renters overlapped (with the point estimates not statistically different at the 1% significance level). We found that the probability of conceiving a first child as a private renter did not change substantially across the four periods, remaining at 3.8% for 2013–2016. However, the probability of homeowners conceiving a first child was significantly lower for 2013–16 than for the previous period, decreasing from 8.2% for 2008–2012 to 5.6% for 2013–2016.

In other words, the overall decline in the probability of conceiving a first child (which was consistent with the downturn in total fertility rates in Britain since 2012) was driven mostly by a decline among homeowners and to a lesser extent by a decline in childbearing among social renters. The probability of having a first child as a social renter did not show any meaningful change over the study period. Given the scarcity of childless women in that tenure group, the confidence intervals were considerably wider, complicating interpretation of results. However, point estimates suggest that first conceptions among social renters have declined during the most recent period, reaching their lowest level at 2.5% in 2013–2016. In contrast, rates of entry into first parenthood among private renters have been sustained during the housing crisis. Consequently, the difference in birth rates between homeowners and private renters has reduced markedly.

(Figure 1 here)

Our second research question asked whether the changing relationship between tenure type and entry into motherhood could be explained by the changing composition of the tenure groups.

¹⁰ We used the margins command in Stata, setting the control covariates at their average level with the random effect fixed at its mean value of zero (StataCorp 2017; Williams 2012).

Model 2 (Appendix Table 2 and Figure 2) demonstrated that controlling for women’s socio-economic and demographic characteristics did not alter the substantive finding. The predicted annual probability of conceiving a first child was significantly higher for homeowners compared to private tenants for the first three periods, but not statistically significantly different for 2013–2016 (Figure 2). Hence, the temporal change in the relationship between homeowners and private renters emerged clearly, as did the decline in the probability of conceiving among homeowners for the most recent period, even after controlling for a variety of demographic and socio-economic factors.

All of the control coefficients from Model 2 (Appendix Table 2) conform with expectations from the published literature, including previous findings based on the BHPS (Fiori et al. 2014; Kulu and Washbrook 2014). As found previously for the BHPS, entry into motherhood was far more likely among married women, intermediate for cohabiting women, and lowest for those unpartnered (Fiori et al. 2014; Kulu and Washbrook 2014). Partnership mediated the link between housing tenure and the first child’s conception to a limited extent, partly capturing the preference for being homeowners before conceiving a first child¹¹. This finding corroborates the view that the simultaneity between co-residential partnership formation and homeownership is not as strong as in the past. As found by Tavares (2016), educational enrolment was negatively associated with childbearing, and there was a strong interaction between education and age: at younger ages, the probability of conceiving a first child was highest among those with lower levels of education, whereas at older ages a positive relationship between education and entry into motherhood was observed. Education also partly mediated tenure, as emerged from the stepwise procedure. Overcrowding was not associated with the probability of conceiving a first child. Some evidence of anticipatory moves was observed, whereby those who had moved into a property in the previous year were more likely to experience a conception than those who had lived at a property for at least three years (an anticipatory effect consistent across housing tenure groups). The length of this paper precludes a detailed discussion of the relationships between the remaining coefficients and the outcome.

(Figure 2 here)

The significant interaction between age and tenure demonstrated by Model 2 (Appendix Table 2 and Figure 3) suggests that the effect of housing tenure on entry into motherhood depends on a woman’s age. In recent years, women belonging to “Generation Rent” have been equally likely to start a family as homeowners or private renters. For the youngest women (those aged 18–24), the

¹¹ We checked the mediator effect of partnership formation on the link between housing tenure and the first child’s conception, including partnership status in the model for the first research question as the first step in the stepwise procedure (results available in the supplementary material).

probability of conceiving a first child was higher among homeowners than private renters until 2012; in the most recent period (2013–2016), the probability of having a child as a homeowner had nearly halved compared to the previous period (from 6.9% for 2008–2012 to 3.7% for 2013–2016), meaning it was not statistically different (at 1%) to the probability of private renters having a child. In contrast, the probability of conceiving a first child among private renters was highest (over 2.0%) during the final two periods, indicating an overall increasing trend over time. For women aged 25–29 and 30–34, although the predicted annual probability of conceiving a first child remained significantly higher among homeowners compared to private renters for all periods, it also declined for those in the 25–29 group. In contrast, for women aged 30–34, the probability of having a child as a homeowner remained as high for the final period as it was for 1991–1999. Finally, for women aged 35–44, the probability of having a first child was substantially lower, being equally likely for homeowners and private renters during every period. This suggests that, for women approaching the end of the reproductive period of their life, tenancy status is less relevant than, for example, their aspirations for motherhood, upon controlling for other socio-economic and demographic factors.

(Figure 3 here)

In the final step (Model 3, Appendix Table 2), we considered local house prices, measured by the distribution of lower-quartile house prices in the LAD, as a second-level covariate. As shown in Figure 4¹², while conception rates for 1991–1999 are significantly higher among homeowners compared to private renters for all LADs, the confidence intervals for the probability of becoming a mother as a homeowner compared to as a private renter overlapped during the period 2013–2016 (with the point estimates not statistically different at the 1% significance level). The LADs with average house prices (third quintile) were the first to experience the change in the association between housing tenure and first conception, with the phenomenon being observed beginning in 2000.

(Figure 4 here)

Discussion

This paper adds to the discussion of how the association between homeownership and parenthood is changing in Britain as a consequence of the reaction of younger generations to the UK housing crisis. Homeownership rates, especially among younger people, have plummeted. Social housing has

¹² For readability, we opted for only including the 1st, 3rd and 5th quintiles in the figure. Nonetheless, Appendix Table 2 shows all model coefficients.

become a *residualized* sector providing support for the most vulnerable groups. Consequently, there has been a rapid increase in the number of people living in private rented accommodation into their late twenties. Our study suggests a new family formation dynamic, involving a change over time in the relationship between homeownership and entry into motherhood. The likelihood of becoming a parent while in owner-occupied accommodation has slumped in recent years, to the point that of it being equally likely to become a parent while living in private rented accommodation. While there is no longer any significant difference between homeowners and private renters among young adults aged 18–24, for those aged 25–29, the probability of having a child as a homeowner has declined, suggesting that it might continue to decline to the point of there being no significant difference. This signals a radical change compared to the recent past, when buying a house with a partner was often experienced as the step before family formation.

Estimated fertility rates among our sample of childless women demonstrated a period trend consistent with vital registration data, indicating that the recent decline in fertility rates can be associated with a decline in fertility among owner-occupiers. Although our data do not allow determination of the underlying reasons for this decline, we hypothesize that homeownership is progressively competing with the cost of childbearing, especially given the majority of owner-occupied homes are purchased with a mortgage and a higher proportion of income is used to service that debt (Udagawa and Sanderson 2017) or to repay (at least partly) money received to fund a deposit (Heath and Calvert 2013; Ronald and Druta 2016). Homeownership increasingly requires households to have a dual-income; accordingly, buying a home encourages women to attach themselves to the labor market. Second, in a socio-economic context where increasing economic difficulties challenge homeownership, homeowners might have become a more select group, one characterized by an (unmeasured) orientation toward career and material aspirations. This process was anticipated by Hakim (2003: 220): “Women’s sex role ideology and work orientations determine both fertility and the financial strength to afford home ownership.” If so, contemporary homeowners could delay childbearing—or remain childless—because they prioritize personal and material aspirations over having children.

Although local housing markets appear to substantially shape the transition to parenthood, the relationship is not linear, probably reflecting several counteracting forces (see, e.g., Arundel and Doling 2017; Lennartz et al. 2016). In areas where house prices accord with the British average—e.g., Cardiff, Dover, Edinburgh, and Southampton—the likelihood of entering parenthood became similar for homeowners and private renters in the early 2000s, with the convergence between the two groups beginning in these areas; here private renters display the highest propensity to have a child. Until very recently, in areas where housing was more expensive, homeowners tended to exhibit higher

childbearing rates than private renters. In the most expensive areas, which include London and Oxford, those able to buy a house are a select, wealthy group. We might speculate that this group is less in need of a dual-income because individuals buying homes in the most expensive housing markets are likely to have other sources of income (e.g., from family or inheritance). Thus, for the wealthiest group, homeownership and childbearing remain strongly associated, as was the case for most groups in the past. Similarly, where housing is cheaper, the need for a dual-income is reduced, and homeownership may be secured in advance of parenthood. Nonetheless, since 2008, homeownership has also become less affordable in areas where house prices are the most and least expensive; as such, higher rates of parenthood among homeowners are not maintained.

Ultimately, local housing markets shape the association between homeownership and parenthood in complex ways. Although we cannot reach a definitive conclusion, these results provide some insight into the potential role of local house prices as a moderator of such an association. This paper identified housing markets at the LAD level; it is possible that this is too large a geographical area to represent a local housing market. Unfortunately, no data are available for Britain at a smaller scale; nonetheless, future studies could examine how the effect of local housing markets changes according to the measurement scale. Additionally, we have not examined the role of other contextual factors, such as childcare availability and labor-market characteristics. These could also be tested in future work. Nonetheless, our results suggest increasing competition between the costs of homeownership and childbearing. Although this competition might have first emerged in areas where house prices accord with the country's average, it can now be observed in all areas.

Given rising house prices, the need for a dual income, and reduced availability of mortgages are widespread in Western countries, the changing relationship between homeownership and parenthood posited by this study may be observable in other countries, too. However, the "Generation Rent" phenomenon (Lennartz et al. 2016) and the strict regulation of private rentals in favor of landlords are UK-specific characteristics; thus, caution is advised if considering extending our findings to other settings.

The disconnection between homeownership and entry into parenthood has significant implications for parents and their children. In fact, the specific nature of the private rental housing market in Britain remains un-family friendly, unregulated, and insecure; for example, uncertainty exists around when a family in such a home could be asked to leave (Judge and Tomlinson 2018). Of particular concern to the parents of children in a private rental is that moving house can require moving children from one school to another. In Britain, access to state schools is contingent upon living in the school's catchment area (generally, a particular neighborhood), and there is often over-demand for better performing schools, which diminishes housing choice (Hansen 2014). Social

housing, traditionally important in Britain, is becoming increasingly marginal in the transition to parenthood. Low-income-earning young people, who would have formed a family as social tenants in the past, are now often in precarious private rental situations, or, in cases where housing is more affordable, having to manage disproportionately high mortgage costs.

The rise in private renting does not appear to be driven by changing tenure preferences. In fact, the vast majority of young Britons still aspire to become homeowners (Marshall and Smith 2016; Pannel 2016). Many young people regard homeownership as the only suitable tenure for starting a family (Hoolachan et al. 2017). However, homeownership is not viable for many young people due to homeownership's increasing unaffordability. In the words of Hoolachan et al. (2017: 72), young adults are faced with a "double disadvantage of housing and income insecurity." Several authors have suggested that couples in the lowest-low fertility countries have limited their childbearing due to mounting economic uncertainty levels (Kohler et al. 2002; Mills and Blossfeld 2003, 2013; Vignoli et al. 2020). Uncertainty makes it increasingly difficult for individuals to imagine their future, choose between alternatives, and strategize (Vignoli et al. 2020). Housing uncertainty might additionally impact the transition to parenthood, producing insecurity regarding where and under what conditions an individual will reside. Private tenants have historically faced housing uncertainty; we posit that, for this reason, they have traditionally had lower fertility compared to owner-occupiers. However, housing uncertainty has increased for owner-occupiers in recent years, linked to macro-economic changes (financial and unemployment-related uncertainties) and changing pathways into homeownership (the increased importance of mortgage credit and loans from parents). We speculate that this increased uncertainty among homeowners lies beneath the weakening association between homeownership and childbearing.

Appendix

(Table 2 here)

References

- Alderotti, G., Vignoli, D., Baccini, M., & Matysiak, A. (2019). *Employment uncertainty and fertility: A network meta-analysis of European research findings*. https://local.disia.unifi.it/wp_disia/2019/wp_disia_2019_06.pdf
- Arundel, R., & Doling, J. (2017). The end of mass homeownership? Changes in labour markets and housing tenure opportunities across Europe. *Journal of Housing and the Built Environment*, 32(4), 649–672. doi:10.1007/s10901-017-9551-8
- Barber, J. S., Murphy, S. A., Axinn, W. G., & Maples, J. (2000). Discrete-time multilevel hazard analysis. *Sociological Methodology*, 30(1), 201–235. doi:10.1111/0081-1750.00079
- Barbieri, P., Bozzon, R., Scherer, S., Grotti, R., & Lugo, M. (2015). The Rise of a Latin Model? Family and fertility consequences of employment instability in Italy and Spain. *European Societies*, 17(4), 423–446. doi:10.1080/14616696.2015.1064147
- Becker, G. S. (1991). *A treatise on the family*. Cambridge, US: Harvard University Press.
- Berrington, A., & Stone, J. (2014). Young adults' transitions to residential independence in Britain: the role of social and housing policy. In L. Antonucci, M. Hamilton, & S. Roberts (Eds.), *Young People and Social Policy in Europe: Dealing with Risk, Inequality and Precarity in Times of Crisis* (pp. 210–235). Basingstoke: Palgrave Macmillan. <http://eprints.soton.ac.uk/365137/>
- Berrington, A., Stone, J., & Beaujouan, E. (2015). Educational differences in timing and quantum of childbearing in Britain: A study of cohorts born 1940-1969. *Demographic Research*, 33(26), 733–764. doi:10.4054/DemRes.2015.33.26
- Blossfeld, H.-P., & Hofmeister, H. (2006). *Globalization, Uncertainty & Women's Careers: An International Comparison*. Cheltenham, UK: Edward Elgar Publishing.
- Blossfeld, H.-P., Klijzing, E., Mills, M., & Kurz, K. (2005). *Globalization, Uncertainty and Youth in Society*. London, UK and New York, US: Routledge.
- Blossfeld, H.-P., Mills, M., & Bernardi, F. (2006). *Globalization, Uncertainty and Men's Careers: An International Comparison*. Cheltenham, UK: Edward Elgar Publishing.
- Browning, C. R., Leventhal, T., & Brooks-Gunn, J. (2004). Neighborhood context and racial differences in early adolescent sexual activity. *Demography*, 41(4), 697–720.
- Castiglioni, M., & Zuanna, G. D. (1994). Innovation and tradition: Reproductive and marital behaviour in Italy in the 1970s and 1980s. *European Journal of Population*, 10, 107–141. doi:10.1007/bf01264895
- Clapham, D., Mackie, P., Orford, S., Thomas, I., & Buckley, K. (2014). The housing pathways of young people in the UK. *Environment and Planning A*, 46(8), 2016–2031.
- Clark, W. A. V. (2012). Do women delay family formation in expensive housing markets?

Demographic Research, 27, 1–24. doi:10.4054/DemRes.2012.27.1

- Clark, W. A. V, & Mulder, C. H. (2000). Leaving home and entering the housing market. *Environment and Planning A*, 32(9), 1657–1671.
- Clark, W. A. V, & Withers, S. D. (2007). Family migration and mobility sequences in the United States: Spatial mobility in the context of the life course. *Demographic Research*, 17, 591–622. doi:10.4054/DemRes.2007.17.20
- Cole, I., Powell, R., & Sanderson, E. (2016). Putting the Squeeze on ‘Generation Rent’: Housing Benefit Claimants in the Private Rented Sector - Transitions, Marginality and Stigmatisation. *Sociological Research Online*, 21(2), 1–14. doi:10.5153/sro.3909
- Comolli, C. L. (2017). The fertility response to the Great Recession in Europe and the United States: Structural economic conditions and perceived economic uncertainty. *Demographic research*, 36, 1549–1600.
- Coulter, R. (2016). Parental background and housing outcomes in young adulthood. *Housing Studies*, 3037(August), 0–23. doi:10.1080/02673037.2016.1208160
- Courgeau, D., & Lelièvre, E. (1992). Interrelations between first home-ownership, constitution of the family, and professional occupation in France. In J. Trussell, R. Hankinson, & J. Tilton (Eds.), *Demographic Applications of Event History Analysis* (pp. 120–140). Oxford, UK: Clarendon Press.
- Cribb, J., Hood, A., & Hoyle, J. (2018). *The decline of homeownership among young adults* (No. BN224). London, UK. <https://www.ifs.org.uk/uploads/publications/bns/BN224.pdf>
- Deurloo, M. C., Clark, W. A. V, & Dieleman, F. M. (1994). The move to housing ownership in temporal and regional contexts. *Environment and Planning A*, 26(11), 1659–1670. <http://www.envplan.com/abstract.cgi?id=a261659>
- Di Salvo, P., & Ermisch, J. (1997). Analysis of the dynamics of housing tenure choice in Britain. *Journal of Urban Economics*, 42(1), 1–17.
- Easthope, H. (2014). Making a Rental Property Home. *Housing Studies*, 29(5), 579–596. doi:10.1080/02673037.2013.873115
- Ermisch, J., & Steele, F. (2016). Fertility expectations and residential mobility in Britain. *Demographic Research*, 35(1), 1561–1584. doi:10.4054/DemRes.2016.35.54
- Feijten, P., & Mulder, C. H. (2002). The timing of household events and housing events in the Netherlands: A longitudinal perspective. *Housing studies*, 17(5), 773–792.
- Fiori, F., Graham, E., & Feng, Z. (2014). Geographical variations in fertility and transition to second and third birth in Britain. *Advances in life course research*, 21, 149–167.
- Fisher, J. D. M., & Gervais, M. (2011). Why has home ownership fallen among the young?

- International Economic Review*, 52(3), 883–912. doi:10.1111/j.1468-2354.2011.00653.x
- Fumagalli, L., Knies, G., & Buck, N. (2017). *Understanding Society, The UK Household Longitudinal Study, Harmonised British Household Panel Survey (BHPS) User Guide*. ISER University of Essex. <http://repository.essex.ac.uk/21094/1/bhps-harmonised-user-guide.pdf>
- Hagenaars, A. J. M., De Vos, K., & Asghar Zaidi, M. (1994). Poverty statistics in the late 1980s: research based on micro-data. Luxembourg (Luxembourg) Office for Official Publications of the European Communities. <http://agris.fao.org/agris-search/search.do?recordID=XF2015009737>. Accessed 16 May 2018
- Hakim, C. (2003). *Models of the Family in Modern Societies: Ideals and Realities: Ideals and Realities*. Aldershot: Ashgate.
- Hansen, K. (2014). Moving house for education in the pre-school years. *British Educational Research Journal*, 40(3), 483–500. doi:10.1002/berj.3092
- Heath, S., & Calvert, E. (2013). Gifts, Loans and Intergenerational Support for Young Adults. *Sociology*, 47(6), 1120–1135. doi:10.1177/0038038512455736
- Hoolachan, J., McKee, K., Moore, T., & Soaita, A. M. (2017). ‘Generation rent’ and the ability to ‘settle down’: economic and geographical variation in young people’s housing transitions. *Journal of Youth Studies*, 20(1), 63–78. doi:10.1080/13676261.2016.1184241
- Ineichen, B. (1981). The housing decisions of young people. *British Journal of Sociology*, 252–258.
- Judge, L., & Tomlinson, D. (2018). *Home improvements: Action to address the housing challenges faced by young people*. <https://www.resolutionfoundation.org/app/uploads/2018/04/Home-improvements.pdf>
- Knies, G. (2018). *Understanding Society. The UK household longitudinal study, Waves 1-7 User Guide*. http://doc.ukdataservice.ac.uk/doc/6676/mrdoc/pdf/6676_wave1_to_7_user_guide.pdf
- Kohler, H. P., Billari, F. C., & Ortega, J. A. (2002). The emergence of lowest-low fertility in Europe during the 1990s. *Population and Development Review*, 28(4), 641–680.
- Kreyenfeld, M., Andersson, G., & Pailhe, A. (2012). Economic uncertainty and family dynamics in Europe: Introduction. *Demographic Research*, 27(28), 835–852. doi:Artn 28 Doi 10.4054/Demres.2012.27.28
- Krishnan, V., & Krotki, K. J. (1993). Life cycle effects on homeownership in Canada. *Housing Studies*, 8(2), 120–127. doi:10.1080/02673039308720755
- Kulu, H., & Hannemann, T. (2016). Why does fertility remain high among certain UK-born ethnic minority women? *Demographic Research*, 35(49), 1441–1488. doi:10.4054/DemRes.2016.35.49
- Kulu, H., & Milewski, N. (2007). Family change and migration in the life course: An introduction.

Demographic Research, 17(19), 567–590. doi:10.4054/DemRes.2007.17.19

Kulu, H., & Steele, F. (2013). Interrelationships Between Childbearing and Housing Transitions in the Family Life Course. *Demography*, 50(5), 1687–1714. doi:10.1007/s13524-013-0216-2

Kulu, H., & Washbrook, E. (2014). Residential context, migration and fertility in a modern urban society. *Advances in Life Course Research*, 21, 168–182.

Lennartz, C., Arundel, R., & Ronald, R. (2016). Younger adults and homeownership in Europe through the global financial crisis. *Population, Space and Place*, 22(8), 823–835. doi:10.1002/psp.1961

Marshall, L., & Smith, N. (2016). *First-time buyers. An early life crisis: Britain's homeownership aspirations*. <https://www.bl.uk/britishlibrary/~media/bl/global/social-welfare/pdfs/non-secure/f/i/r/firsttime-buyers-an-early-life-crisis-britains-homeownership-aspirations.pdf>

McKee, K. (2012). Young People, Homeownership and Future Welfare. *Housing Studies*, 27(6), 853–862. doi:10.1080/02673037.2012.714463

Mills, M., & Blossfeld, H.-P. (2003). Globalization, uncertainty and changes in early life courses. *Zeitschrift für Erziehungswissenschaft*, 6(2), 188–218.

Mills, M., & Blossfeld, H.-P. (2013). The Second Demographic Transition meets globalisation: A comprehensive theory to understand changes in family formation in an era of rising uncertainty. In A. Evans & J. Baxter (Eds.), *Negotiating the life course. Stability & change in life pathways* (pp. 9–33). New York, US: Springer.

Mulder, C. H. (2006a). Population and housing: A two-sided relationship Clara H . Mulder. *Demographic Research*, 15(13), 401–412.

Mulder, C. H. (2006b). Home-ownership and family formation. *Journal of Housing and the Built Environment*, 21(3), 281–298. doi:10.1007/s10901-006-9050-9

Mulder, C. H., & Billari, F. C. (2010). Homeownership Regimes and Low Fertility. *Housing Studies*, 25(4), 527–541. doi:10.1080/02673031003711469

Mulder, C. H., & Smits, J. (1999). First-time home-ownership of couples: The effect of inter-generational transmission. *European Sociological Review*, 15(3), 323–337. doi:10.2307/522734

Mulder, C. H., & Wagner, M. (1993). Migration and marriage in the life course: a method for studying synchronized events. *European Journal of Population/Revue européenne de Démographie*, 9(1), 55–76.

Mulder, C. H., & Wagner, M. (1998). First-time Home-ownership in the Family Life Course: A West German-Dutch Comparison. *Urban Studies*, 35(4), 687–713. doi:10.1080/0042098984709

Mulder, C. H., & Wagner, M. (2001). The connections between family formation and first-time home ownership in the context of West Germany and the Netherlands. *European Journal of*

Population, 17(2), 137–164. doi:10.1023/A:1010706308868

- Murphy, M. J. (1984). The influence of fertility, early housing-career, and socioeconomic factors on tenure determination in contemporary Britain. *Environment and Planning A*, 16(10), 1303–1318.
- Murphy, M. J., & Sullivan, O. (1985). Housing tenure and family formation in contemporary Britain. *European Sociological Review*, 1(3), 230–243.
- ONS. (2016). UK Perspectives 2016: Housing and home ownership in the UK. <https://visual.ons.gov.uk/uk-perspectives-2016-housing-and-home-ownership-in-the-uk/>
- ONS. (2017a). Housing affordability in England and Wales: 1997 to 2016. <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/bulletins/housingaffordabilityinenglandandwales/1997to2016#affordability-gap-widens-over-time>
- ONS. (2017b). Births by parents' characteristics in England and Wales: 2016. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsbyparentscharacteristicsinenglandandwales/2016>. Accessed 13 September 2018
- ONS. (2017c). Lower quartile price paid for administrative geographies - HPSSA Dataset 15. <https://www.ons.gov.uk/peoplepopulationandcommunity/housing/datasets/medianhousepricefornationalandsubnationalgeographiesquarterlyrollingyearhpssadataset09>. Accessed 20 June 2017
- ONS. (2019). Births in England and Wales: 2018. <https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/livebirths/bulletins/birthsummarytablesenglandandwales/2017>. Accessed 13 September 2018
- Öst, C. E. (2011). Housing and children: Simultaneous decisions?-a cohort study of young adults' housing and family formation decision. *Journal of Population Economics*, 25(1), 349–366. doi:10.1007/s00148-010-0345-5
- Pannel, B. (2016). Home-ownership or bust?
- Pinnelli, A. (2020). Marital fertility and the changing status of women in Europe. *Genus*, 76(1). doi:10.1186/s41118-020-0072-z
- Pronzato, C. D. (2011). *British Household Panel Survey Consolidated Marital, Cohabitation and Fertility Histories, 1991-2009 [data collection]. 3rd Edition*. Colchester, UK: University of Essex, Institute for Social and Economic Research, [original data producer(s)]. University of Essex, Institute for Social and Economic Research. SN: 5629. doi:http://doi.org/10.5255/UKDA-SN-5629-1
- Ricci, R. (1997). *Povert  abitativa in Italia, 1989–1993*. Rome.
- Ronald, R. (2008). *The Ideology of Homeownership: Homeowners, Societies and the Role of Housing*. Basingstoke: Palgrave Macmillan.
- Ronald, R., & Druta, O. (2016). How changes in housing, homes and households are reshaping urban

- Japan. *Singapore: Asia Research Institute*, 6–8.
- Rose, D., & Pevalin, D. (2003). *The National Statistics Socio-economic Classification: Origins, Development and Use*. London: ONS.
- Rugg, J. J. (2010). *Young people and housing: the need for a new policy agenda*. York. <https://www.jrf.org.uk/report/young-people-and-housing-need-new-policy-agenda>. Accessed 3 March 2017
- Sato, Y. (2007). Economic geography, fertility and migration. *Journal of Urban Economics*, 61(2), 372–387.
- Saunders, P. (1990). *A Nation of Home Owners*. London: Unwin Hyman.
- Scottish Government. (2017). Lower quartile house prices. <http://statistics.gov.scot/data/house-sales-prices>. Accessed 20 June 2017
- Simon, C. J., & Tamura, R. (2009). Do higher rents discourage fertility? Evidence from US cities, 1940–2000. *Regional Science and Urban Economics*, 39(1), 33–42.
- StataCorp. (2017). *Stata 15 Base Reference Manual*. College Station, Texas, Texas: Stata Press.
- Tavares, L. P. (2016). Who delays childbearing? The associations between time to first birth, personality traits and education. *European Journal of Population*, 32(4), 575–597.
- Udagawa, C., & Sanderson, P. (2017). *The impacts of family support on access to homeownership for young people in the UK*. London, UK. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/602541/Impact_of_family_support_on_homeownership.pdf
- University of Essex Institute for Social and Economic Research. (2018). *Understanding Society: Waves 1-8, 2009-2017 and Harmonised BHPS: Waves 1-18, 1991-2009: Special Licence Access, Local Authority District*. [data collection]. 10th Edition. UK Data Service. SN: 6666. doi:<http://doi.org/10.5255/UKDA-SN-6666-10>
- Vignoli, D., Guetto, R., Bazzani, G., Pirani, E., & Minello, A. (2020). A reflection on economic uncertainty and fertility in Europe: The Narrative Framework. *Genus*, 76(28). doi:10.1186/s41118-020-00094-3
- Vignoli, D., Rinesi, F., & Mussino, E. (2013). A Home to Plan the First Child? Fertility Intentions and Housing Conditions in Italy. *Population, Space and Place*, 19(1), 60–71. doi:10.1002/psp.1716
- Vignoli, D., Tanturri, M. L., & Acciai, F. (2016). Home bitter home? Gender, living arrangements, and the exclusion from homeownership among older Europeans. *Genus*, 72(1). doi:10.1186/s41118-016-0014-y
- Vignoli, D., Tocchioni, V., & Mattei, A. (2019). The impact of job uncertainty on first-birth

postponement. *Advances in Life Course Research*, (May 2018), 100308.
doi:10.1016/j.alcr.2019.100308

Williams, R. (2012). Using the margins command to estimate and interpret adjusted predictions and marginal effects. *The Stata Journal*, 12(2), 308–331.

Table 1: Sample Characteristics – Overall person-years (column percentages)

	Homeownership	Social renting	Private renting
Person-years (n)	11,118	1,383	4,870
Age group (%)			
18-24	12.5	29.8	38.7
25-29	27.8	21.8	31.2
30-34	25.6	19.4	16.9
35-44	34.2	29.1	13.2
Partnership status (%)			
single	27.2	59.5	51.5
married	39.3	16.3	14.2
cohabiting	33.5	24.3	34.3
Education (%)			
low	25.6	54.7	20.9
medium	35.4	29.6	37.8
high	39.0	15.7	41.4
Economic activity (%)			
employed	93.7	57.6	76.9
full-time student	2.3	8.0	17.1
unemployed	2.2	16.7	4.4
inactive	1.9	17.7	1.5
Calendar period (%)			
1991-1999	29.3	22.6	17.6
2000-2007	28.9	21.0	21.2
2008-2012	25.6	35.0	37.5
2013-2016	16.3	21.4	23.7
Parental social class (%)			
Management & professional	18.7	13.7	24.1
Intermediate	16.6	9.9	13.4
Small employers & own account	8.5	9.0	11.3
Lower supervisory & technical	7.8	5.8	4.3
Semi-routine, routine & long term unemployed	48.4	61.6	46.8
Equivalised household income (into quintiles) (%)			
First (lowest income)	7.0	53.0	30.5
Second	16.1	27.7	24.2
Third	21.8	11.2	18.8
Fourth	24.4	6.3	16.0
Fifth (highest income)	30.6	1.8	10.6
Overcrowded household (%)			
No	62.9	32.7	34.8
Yes	37.0	67.3	65.2
Born outside UK (%)			
No	91.9	88.4	84.4
Yes	8.1	11.6	15.6
Time since move (%)			
Moved that year ^(a)	18.8	22.6	45.7
One year before	16.1	17.2	21.2
Two years before	13.4	12.1	12.7
Three or more years before	51.6	48.1	20.4

Note: (a) If a woman moved that year, it means that she moved house sometime in between wave $t-1$ and wave t .

Table 2: Model coefficients for Model 1, Model 2 and Model 3^(a)

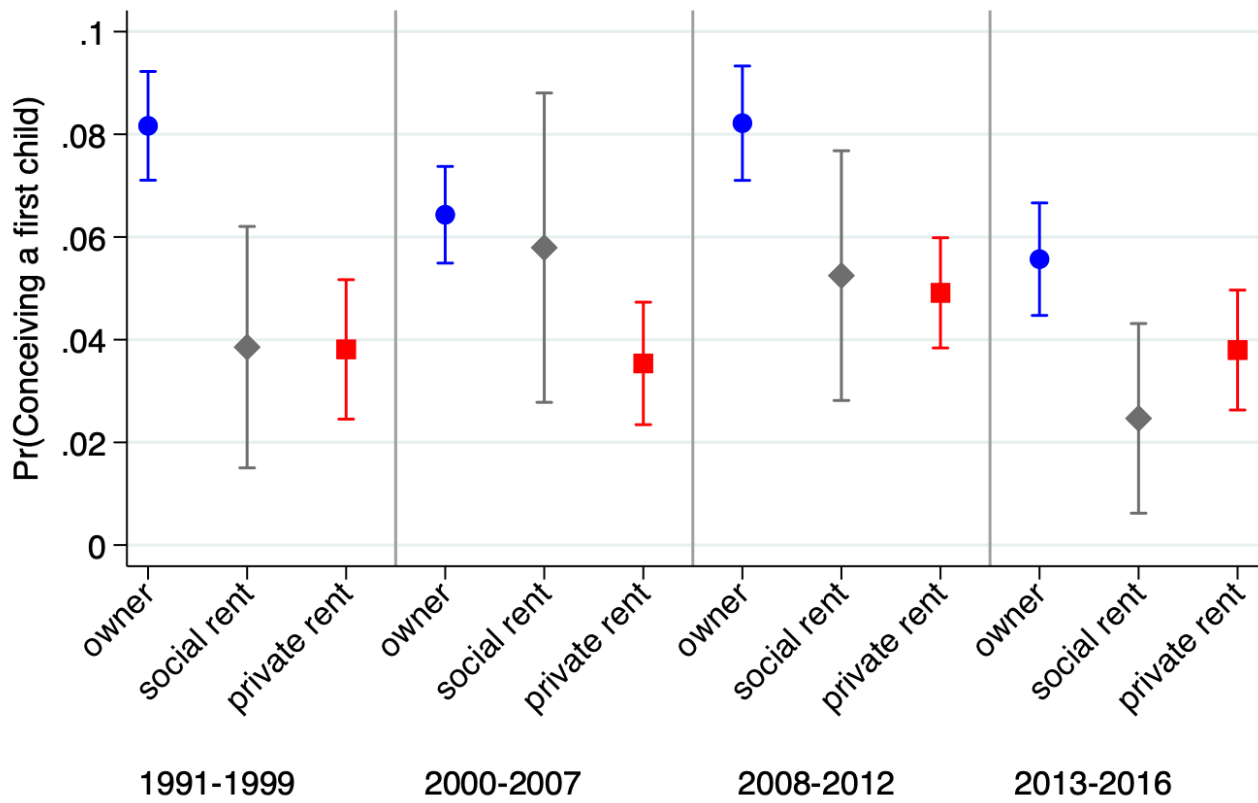
	Model 1			Model 2			Model 3		
	coeff.	s.e.	p value	coeff.	s.e.	p value	coeff.	s.e.	p value
Fixed part									
Age group (ref. 18-24)									
25-29	0.315	0.116	0.007	-0.324	0.189	0.086	-0.324	0.189	0.087
30-34	0.361	0.118	0.002	-0.645	0.200	0.001	-0.656	0.201	0.001
35-44	-1.133	0.144	0.000	-2.133	0.246	0.000	-2.144	0.246	0.000
Housing tenure (ref. ownership)									
social renting	0.216	0.421	0.607	0.679	0.444	0.126	0.642	0.497	0.197
private renting	-0.894	0.251	0.000	-0.208	0.257	0.419	0.072	0.316	0.820
Calendar period (ref. 2013-2016)									
1991-1999	0.258	0.122	0.035	-0.020	0.149	0.894	-0.012	0.149	0.938
2000-2007	0.178	0.125	0.154	0.074	0.151	0.624	0.075	0.151	0.623
2008-2012	0.427	0.122	0.000	0.428	0.125	0.001	0.441	0.125	0.000
Age group#housing tenure									
25-29#social rent	-0.629	0.326	0.054	-0.624	0.348	0.073	-0.572	0.353	0.105
25-29#private rent	-0.035	0.224	0.877	-0.287	0.231	0.214	-0.261	0.232	0.261
30-34#social rent	-1.506	0.439	0.001	-1.159	0.456	0.011	-1.102	0.462	0.017
30-34#private rent	0.396	0.235	0.092	-0.003	0.244	0.990	0.036	0.246	0.882
35-44#social rent	-1.336	0.609	0.028	-1.036	0.628	0.099	-1.022	0.630	0.105
35-44#private rent	1.158	0.303	0.000	0.853	0.310	0.006	0.879	0.311	0.005
Calendar period#housing tenure									
1991-1999#social rent	-0.052	0.475	0.912	-0.075	0.489	0.878	-0.067	0.493	0.892
1991-1999#private rent	-0.167	0.276	0.545	-0.047	0.283	0.869	-0.031	0.284	0.912
2000-2007#social rent	0.044	0.472	0.926	-0.127	0.490	0.796	-0.095	0.495	0.848
2000-2007#private rent	-0.165	0.271	0.544	-0.091	0.276	0.742	-0.071	0.278	0.799
2008-2012#social rent	0.080	0.430	0.852	0.098	0.441	0.824	0.084	0.443	0.850
2008-2012#private rent	-0.162	0.231	0.484	-0.226	0.236	0.338	-0.233	0.237	0.325
Partnership (ref. single)									
marriage				1.993	0.113	0.000	1.997	0.113	0.000

cohabitation	0.970	0.116	0.000	0.969	0.116	0.000
Education (ref. low)						
medium	-0.545	0.168	0.001	-0.540	0.169	0.001
high	-0.843	0.236	0.000	-0.827	0.237	0.000
Age group#education						
25-29#medium	0.538	0.223	0.016	0.524	0.223	0.019
25-29#high	0.636	0.277	0.022	0.627	0.278	0.024
30-34#medium	0.626	0.242	0.010	0.620	0.243	0.011
30-34#high	1.260	0.282	0.000	1.253	0.283	0.000
35-44#medium	0.770	0.303	0.011	0.775	0.303	0.011
35-44#high	1.227	0.330	0.000	1.220	0.331	0.000
Economic activity (ref. employed)						
full-time student	-1.585	0.321	0.000	-1.590	0.321	0.000
unemployed	-0.246	0.200	0.219	-0.256	0.201	0.202
inactive	-0.185	0.250	0.461	-0.200	0.251	0.427
Equivalised income (ref. 1° quintile = lowest)						
2° quintile	-0.241	0.137	0.079	-0.239	0.138	0.083
3° quintile	-0.152	0.138	0.271	-0.138	0.139	0.320
4° quintile	-0.106	0.139	0.448	-0.118	0.141	0.403
5° quintile = highest	0.017	0.143	0.902	-0.011	0.145	0.939
Parental social class (ref. Management and professional)						
intermediate	0.125	0.147	0.395	0.108	0.148	0.463
small employers & own account	0.127	0.172	0.461	0.112	0.173	0.516
lower supervisory & technical	0.142	0.189	0.452	0.142	0.190	0.454
semi-routine, routine & never worked/LT unemployed	0.073	0.123	0.554	0.075	0.123	0.540
Born outside UK	-0.172	0.117	0.142	-0.162	0.119	0.173
Overcrowd	-0.162	0.102	0.112	-0.163	0.102	0.109
Time since move (ref. Moved that year)						
1 year ago	-0.020	0.101	0.846	-0.015	0.102	0.884
2 years ago	0.068	0.108	0.527	0.075	0.108	0.489
3+ years ago	-0.215	0.095	0.024	-0.199	0.096	0.037

Lower-quartile house prices (ref. 1° quintile=lowest)										
2° quintile								-0.002	0.136	0.989
3° quintile								0.049	0.133	0.710
4° quintile								0.291	0.128	0.023
5° quintile=highest								0.189	0.135	0.162
Lower-quartile house prices#housing tenure										
2° quintile#social								0.232	0.418	0.578
2° quintile#private								-0.297	0.309	0.336
3° quintile#social								0.173	0.424	0.684
3° quintile#private								-0.097	0.286	0.734
4° quintile#social								0.066	0.431	0.879
4° quintile#private								-0.564	0.279	0.043
5° quintile#social								-0.333	0.445	0.454
5° quintile#private								-0.469	0.272	0.085
Constant	-2.586	0.143	0.000	-2.832	0.266	0.000	-2.950	0.278	0.000	
Random part										
LAD (variance)	0.112	0.034		0.085	0.032		0.086	0.032		

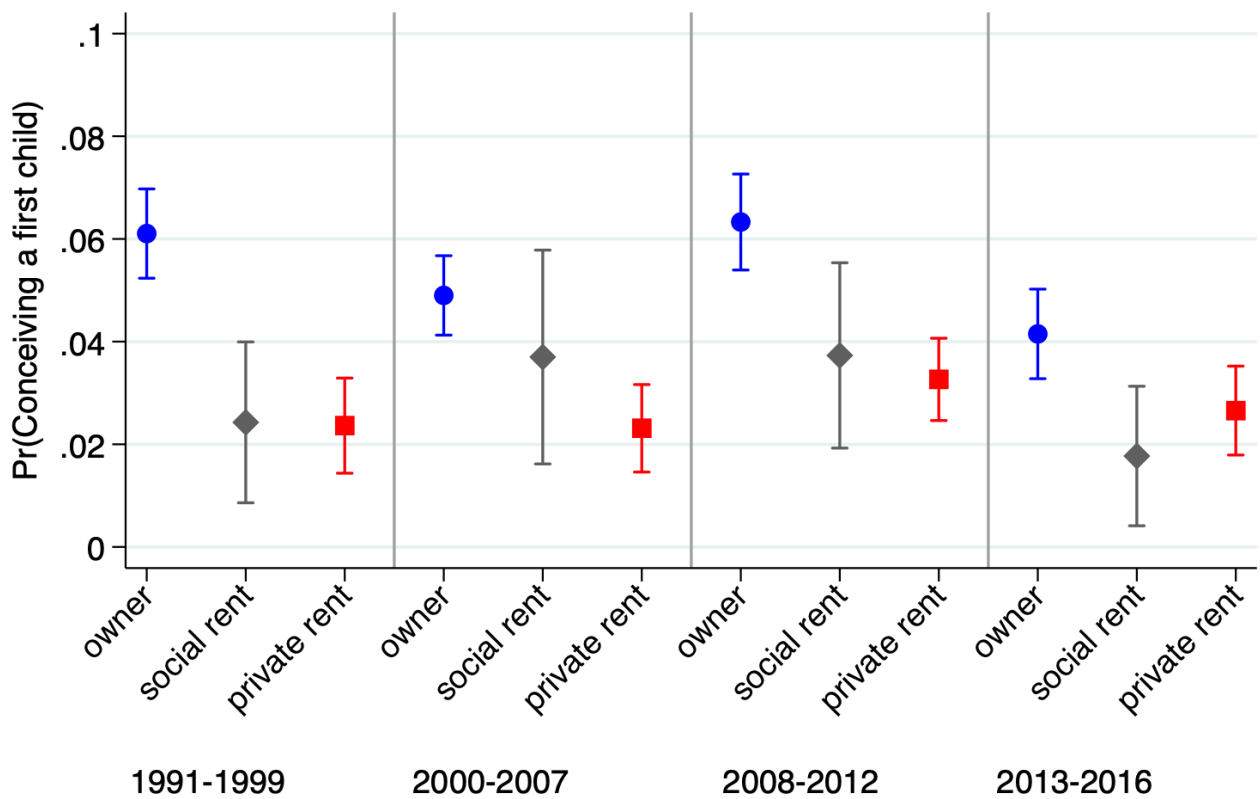
Note: (a) Model 1, Model 2 and Model 3 are multilevel logistic discrete-time event-history models with random intercept (the response variable is first-child conception), and they differ only for the control variables included in the three model specifications.

Figure 1: Results from Model 1: Predicted annual probabilities of conceiving a first child according to calendar period and housing tenure. 1991-2016



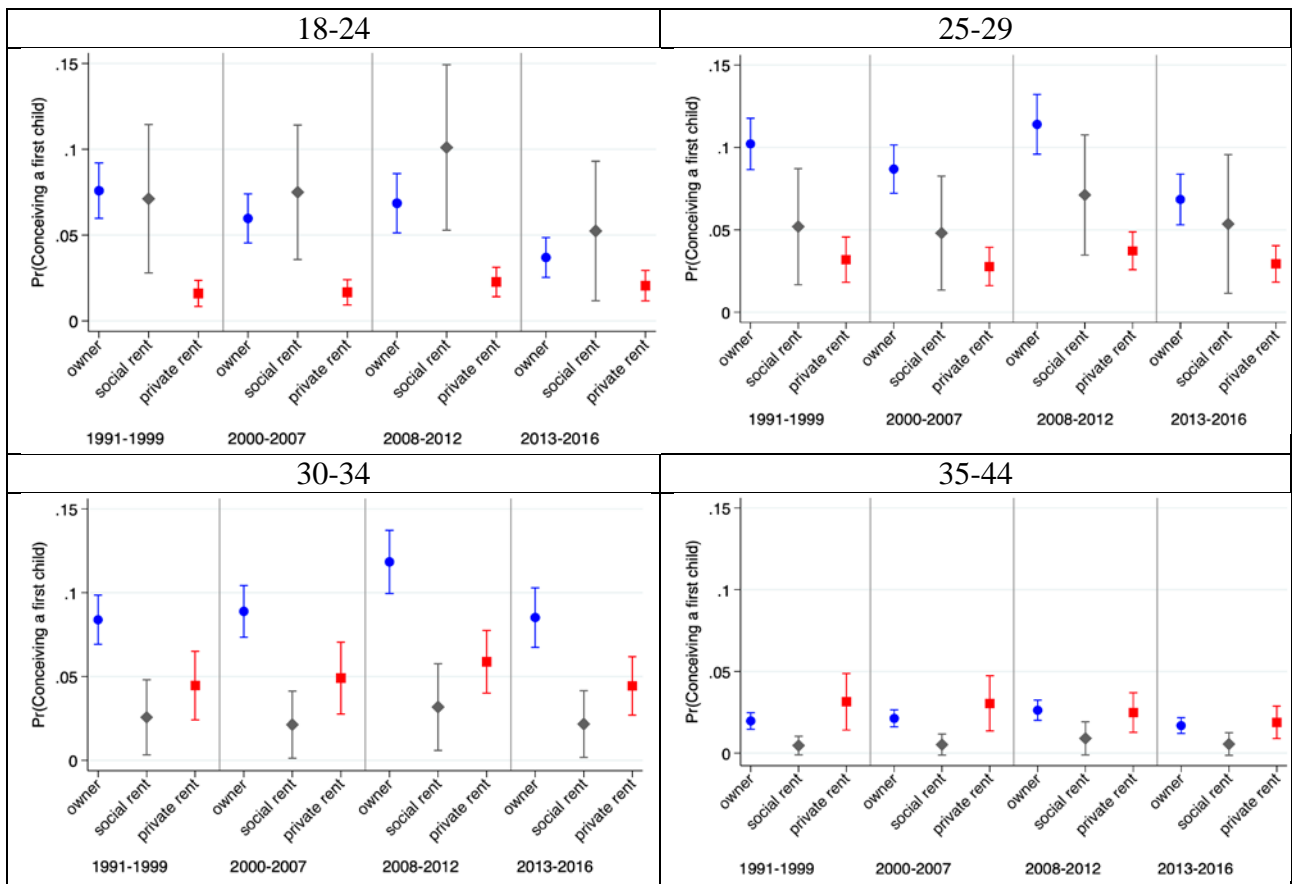
Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study
 Note: To estimate predicted annual probabilities, housing tenure and calendar period are allowed to vary, whilst age group is kept at its mean value

Figure 2: Results from Model 2: Predicted annual probabilities of conceiving a first child according to calendar period and housing tenure. 1991-2016



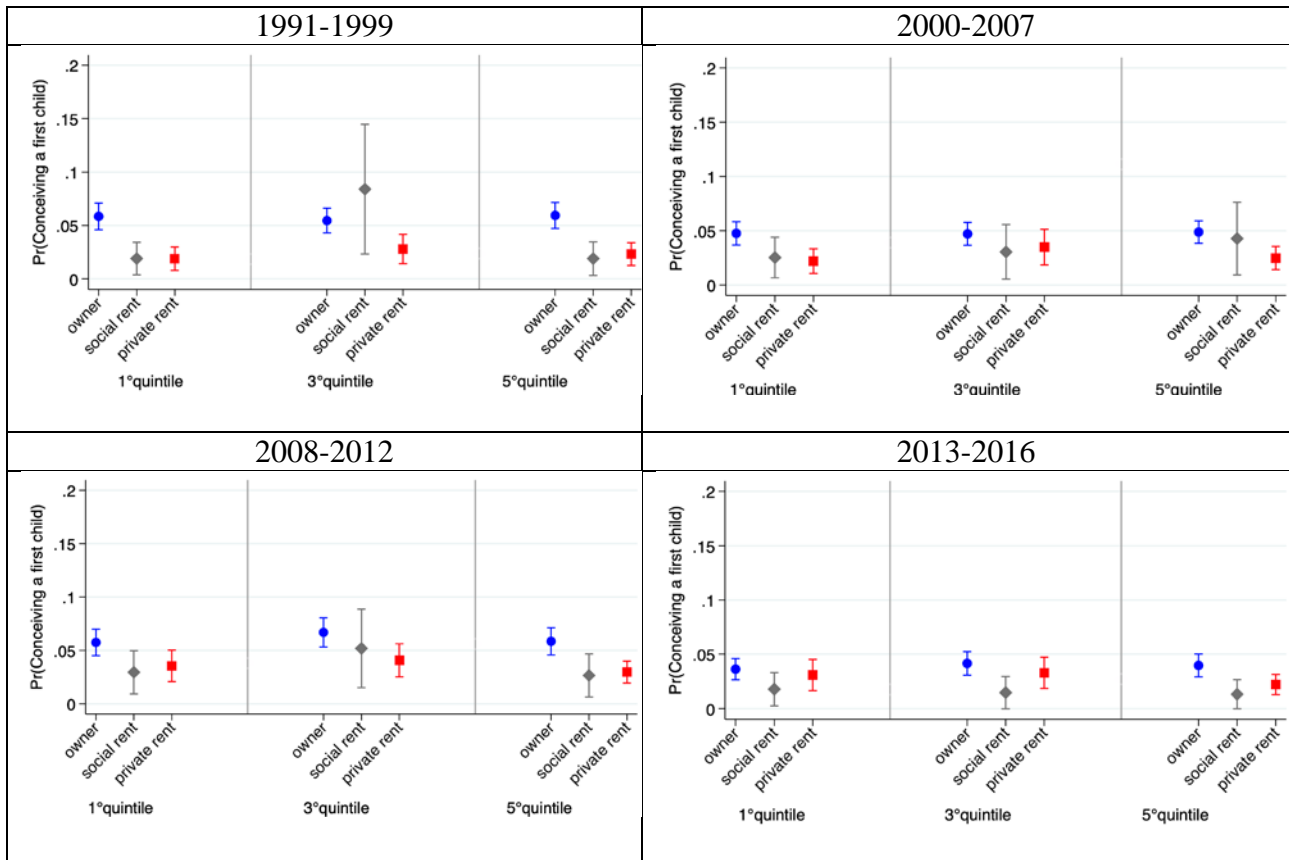
Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study
 Note: To estimate predicted annual probabilities, housing tenure and calendar period are allowed to vary, whilst age group, partnership, education, parental social class, economic activity, equivalised income (in quintiles), overcrowding, country of birth outside UK, and time since move are kept at the mean value

Figure 3: Results from Model 2: Predicted annual probabilities of conceiving a first child according to calendar period, housing tenure and age group. 1991-2016



Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study
Note: To estimate predicted annual probabilities, housing tenure, calendar period and age group vary, whilst partnership, education, parental social class, economic activity, equivalised income (in quintiles), overcrowding, country of birth outside UK, and time since move are kept at the mean value

Figure 4: Results from Model 3: Predicted annual probabilities of conceiving a first child according to calendar period, lower-quartile house prices (1^o, 3^o and 5^o quintiles) and housing tenure. 1991-2016



Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study
Note: To estimate predicted annual probabilities, calendar period, housing tenure and lower-quartile house prices vary, whilst age group, partnership, education, parental social class, economic activity, equivalised income (in quintiles), overcrowding, country of birth outside UK, and time since move are kept at the mean value