

Housing uncertainty and the transition to parenthood among Britain's "generation rent"

92

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ABSTRACT

The literature suggests a positive link between homeownership and transition to parenthood. However, couples' preferences to become homeowners before having their first child have been undermined by rising housing uncertainty and housing unaffordability over recent decades. Britain is an archetype example: homeownership rates have fallen markedly among young adults as a result of low wages, precarious employment, reductions in the availability of mortgage credit, and rising house prices, generating a housing crisis. Using longitudinal data from the British Household Panel Survey (1991-2008) and the United Kingdom Household Longitudinal Study (2009-2016), and applying multilevel discrete-time event-history techniques on a sample of women aged 18-42, we investigate whether and how the link between housing tenure and first birth has changed over recent decades in Britain. We find that, in comparison to the 1990s, the likelihood of becoming a parent has declined among homeowners in recent years, whereas 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".

KEYWORDS

Housing tenure; transition to motherhood; Britain; event-history analysis; panel data; multilevel models.

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HOUSING UNCERTAINTY AND THE TRANSITION TO PARENTHOOD AMONG BRITAIN'S "GENERATION RENT"

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. INTRODUCTION | 1 |
| 2. BACKGROUND..... | 3 |
| 2.1 HOMEOWNERSHIP, PRIVATE RENTING AND ENTRY INTO PARENTHOOD..... | 3 |
| 2.2 HOUSING AND FAMILY FORMATION IN BRITAIN..... | 6 |
| 2.3 RESEARCH QUESTIONS..... | 10 |
| 3. DATA AND METHODS..... | 11 |
| 3.1 DATA | 11 |
| 4. METHOD | 12 |
| 5. RESULTS..... | 18 |
| 5.1 ADDITIONAL ANALYSES: ANTICIPATORY MOVES AND ROBUSTNESS CHECKS | 25 |
| 6. DISCUSSION..... | 26 |
| 7. APPENDIX..... | 30 |
| REFERENCES..... | 32 |

1. INTRODUCTION

The impact of economic conditions on demographic behaviour has been a centrepiece of social sciences for over a century. In recent decades, particular attention has been devoted to the impact of rising uncertainties on fertility. The Great Recession, featuring downturns in both housing, financial and labour market fortunes since 2007 renewed interest in understanding whether different sources of uncertainty affects childbearing (e.g. Barbieri et al. 2015; Kreyenfeld et al. 2012; Modena et al. 2013; Vignoli et al. 2012). In this paper, we posit that *housing uncertainty* plays an important role in the transition to parenthood, in addition to financial and employment uncertainties. Housing uncertainty can be characterized as insecurity regarding *where* individual will reside and under *what conditions*. Uncertainty will more commonly arise among private tenants due to the ending of fixed term tenancies or due to periodic increases in rental prices. Uncertainty may also arise for owner occupiers due to the fear of eviction as a result of mortgage default, which in turn may be linked to other financial and unemployment-related uncertainties and the need to maintain dual income in order to service a mortgage. Social tenants are also at risk of inspection and eviction, for example if they breach tenancy rules, or for non-payment of rent, but the majority tend to have secure lifetime tenancies (Flint and Nixon 2006). Housing uncertainty may also arise in a more subtle way due to the perceived inability to call a house a home and to be able to ‘settle down’ (Hoolachan et al. 2017). In this regard private tenants are the most likely to struggle given their limited rights and options for individualizing their dwellings.

So far, family demographers have devoted relatively little attention to the relationship between housing and fertility differentials (e.g. Mulder 2006a, 2006b; Mulder and Billari 2010). The major aspect of housing that is generally linked to family formation is homeownership. A number of micro-level studies have shown that young adults prefer to be homeowners before having children (Feijten and Mulder 2002; Kulu and Steele 2013; Mulder and Wagner 1998, 2001). The move up to larger, owner occupied and higher-status housing over the life course has been often linked with increasing family size (Clark et al. 1984; Mulder 2013). Additionally, homeownership has an emotional value for many people (Saunders 1990); housing security and housing

stability have been suggested as important prerequisites for family formation (Kulu and Milewski 2007; Vignoli et al. 2013). In recent years, however, difficulties in entering homeownership have created increasingly uncertain housing conditions for many young adults. Rising uncertainties may thus prevent many households from achieving their desired housing conditions, particularly homeownership, at the time of family formation (Mulder 2006b). Housing affordability, in addition to housing uncertainty, may also play a role in explaining the transition to parenthood among young people. We identified a lack of studies addressing explicitly the changing association over time between housing tenure and the transition to parenthood.

This paper explores the links between housing tenure and transition to motherhood in Britain from the 1990s to 2016. In Britain, house prices have been increasing dramatically since the early 1990s, overpassing their initial price by over 200% between 1995 and 2016. The growth of private renting in young adulthood has been much more pronounced than other countries (Lennartz et al. 2016) and more than for other age groups. For this reason, public debates often characterize young Britons aged 16 to 30/35 as “Generation Rent” (McKee 2012; Rugg and Quilgars 2015). This label highlights generational inequalities in access to homeownership that are widely discussed not only in academia, but by policy makers and the media.

The effects of increased house prices and increased private renting on fertility need still to be addressed in Britain. We focus on first childbirth – ignoring higher birth orders – since it is entry into parenthood that appears to be being postponed/foregone: when couples enter parenthood most of them continue to have (at least) another child in the UK (Berrington et al. 2015). We investigate whether and how the link between housing tenure and first child’s birth has changed over the last decades using longitudinal data from the eighteen waves of the British Household Panel Survey (BHPS), spanning between 1991 and 2008, in combination with data from the first seven waves of Understanding Society, the UK Household Longitudinal Study (UKHLS), spanning between 2009 and 2016. More specifically, our analysis addresses whether the association between housing tenure and the probability to conceive a first child changed between 1991 and 2016 in Britain taking into account: (i) the role of the changing demographic and socio-economic characteristics of youth over the period and (ii) the role of housing affordability at the local geographical level.

By exploiting the combination of rich, prospective survey data on a sample of women with area-based information on the housing market, we provide new insight into the changing relationships between young Briton's housing tenures and family formation process. Our findings suggest that today becoming a parent whilst a private renter is as likely as becoming a parent whilst an owner occupier, especially among youth aged 18 to 24 years old, and in areas where the house prices are in line with the country's average. This result signals a radical change compared to the recent past when buying a home often heralded family formation. This pattern is confirmed after we control our estimates for young adults' demographic and socio-economic characteristics and take into account the local housing markets. Hence, with this paper we document a change in the traditional micro-level assumption of a positive link between homeownership and transition to parenthood typical of the past.

2. BACKGROUND

2.1 HOMEOWNERSHIP, PRIVATE RENTING AND ENTRY INTO PARENTHOOD

In most societies, homeownership represents a key asset and source of stability in people's lives, providing security of tenure and generally guaranteeing future consumption. Compared with rented dwellings, owner occupied homes are, on average, more spacious and more easily adapted to a household's needs, providing better housing conditions for starting a family (Mulder and Smits 1999; Ricci 1997). However, analyses of the link between housing and fertility are made complex by the fact that the relationship is reciprocal (Mulder and Wagner 2001). Starting a family can influence subsequent housing choices, but it is also the case that some individuals might postpone childbearing until they have found the right home (Murphy and Sullivan 1985). Ermisch and Steele (2016) demonstrate that for the UK expecting to have a(nother) child in the future increases the probability of moving, especially for childless women who, they argue, have lower moving costs and are most in need of adjusting their housing situation. Kulu and Steele (2013), using data for Finland, explicitly recognize the inter-relatedness of family and housing trajectories by simultaneously modelling conceptions and housing moves, finding evidence in support of a joint process.

In this paper we focus on the link between existing housing tenure and becoming pregnant in the subsequent year. The effect of property ownership on fertility may be either positive or negative. A positive link is usually presumed as access to suitable homes leads couples to have their children earlier (Castiglioni and Zuanna 1994; Krishnan and Krotki 1993; Mulder and Wagner 2001; Pinnelli 1995). Studies have, for example, found positive effects for the Netherlands (Feijten and Mulder 2002), West Germany (Mulder and Wagner 2001), and the US (Deurloo et al. 1994). On the other hand, homeownership may have a negative association with fertility if the cost of purchasing property competes with the cost of childbearing and childrearing (Hakim 2003; Murphy 1984). Such a situation might lower or postpone fertility among those who attach great importance to becoming a homeowner. This negative correlation was found to be significant in France (Courgeau and Lelièvre 1992). In Britain, where the majority of owner occupied homes are purchased with mortgage, the competition between the cost of homeownership and the cost of a child can arise through an unstable employment situation for one or both partners. Losing a job or facing other forms of employment-related uncertainties impact on the ability to repay the mortgage and will therefore give rise to housing uncertainty. For women in particular, employment-related uncertainties are especially common around childbirth, when pay cuts might arise due to extended periods of maternity leave and discrimination or when personal preferences might lead to shift from full-time to part-time employment. Hakim (2003) suggests that the attractions of homeownership and associated financial burdens of mortgages have acted to increase women's employment over the past decades. However, she argues that the size of any housing effect depends on women's lifestyle preferences – the work effect tends to be larger among work-orientated women. Thus, couples tend to self-select into the tenure groups based on cultural and attitudinal factors.

The micro-level association between housing tenure and transition to parenthood may be shaped by local variation in housing affordability and availability. Access to housing has been said to be difficult if, for example, housing is in short supply, house prices are high, or if there is a high level of homeownership (Mulder 2006a: 408). If the housing market can provide good housing at reasonable costs, it is possible to make a smooth entrance to the housing market and then move on in the housing career to long-term housing before becoming parents (Öst 2012). However, difficulties in getting access to housing may lead to delayed childbearing (Castiglioni

and Zuanna 1994; Krishnan and Krotki 1993; Malmberg 2001; Pinnelli 1995). The role of the local housing market as a potential moderator of the micro-level association between tenure and childbearing has been rarely addressed.

Also rarely addressed is the association between housing uncertainty among renters and entry into parenthood. Tenure insecurity means that individuals may be forced to move house. The financial and social costs of moving house are relevant. Whilst financial costs of moving might be greatest among homeowners, the social costs are common to all those who risk losing access to the job market, or losing local sources of support and friendship (Ermisch and Steele 2016). The prospect of having to move might be perceived as stressful, and people are unlikely to welcome the idea of combining a house move with raising a new baby. Furthermore, uncertainty as to future residential location makes it very difficult to plan and secure future access to formal childcare and schools. On the other hand, a house move may have social advantages too, such as moving for being closer to their parents. Thus individuals might postpone childbearing until they have established themselves in a particular neighbourhood. Over and above these constraints to childbearing associated with residential uncertainty, having legal control over a property and being able to call a dwelling ‘home’ is an important component of wellbeing (Easthope 2014; Hoolachan et al. 2017). Thus the inability to ‘settle down’ due to lack of access to sustainable housing is likely to postpone childbearing.

At the macro-level, Mulder and Billari (2010) argued that there is a connection between homeownership regimes and fertility too, distinguishing four *homeownership regimes*, based on the share of owner occupied housing and the access to mortgages. Countries with a lower level of homeownership - namely the “career” and the “elite” homeownership regimes - range from very low fertility to high fertility irrespective of their ease or difficulty in accessing to mortgages, respectively. On the other hand, in those countries with a higher level of homeownership – namely the “easy” and “difficult” homeownership regimes - fertility is higher in the former, but difficult access to mortgages trends to depress fertility (Mulder and Billari 2010).

We know very little about whether and how the association between housing

tenure and transition to parenthood has been changing over time, despite there are reasons to think this is indeed the case, given that the characteristics of both the housing and labour markets have been changing profoundly since the 1990s, as well as the socio-economic characteristics and preferences of young people. In the next section we describe in detail the British context and the changes that its housing market has undergone in the past three decades.

2.2 HOUSING AND FAMILY FORMATION IN BRITAIN

In Britain there are three main housing tenures. Across all ages, homeownership is the most common tenure, usually acquired through a mortgage loan after the payment of an initial deposit. Homeownership in Britain grew steadily during the 1980s and 1990s from around 55% of the housing stock to a maximum of 69% in 2005 (ONS, 2016c), being promoted by Government housing and social policies associated with an ‘ideology of homeownership’ (Ronald 2008). Among young people, rates of homeownership in Britain have plummeted over the past 20 years, and the fall has been largest in both absolute and proportional terms for the youngest (from 46% of 25-29 year olds in 1996 to 25% in 2016, while the proportion of 40- to 44-year-olds who are owner occupiers fell from 75% to 64% during the same period) (Cribb et al. 2018). This is a result of a number of factors not least the increase in house prices over the period, coupled with stagnation or declines in wages and security of employment. The median price paid for residential property in England and Wales increased by 259% between 1997 and 2016, whilst median individual annual earnings increased by 68% in the same time period (ONS 2017a). During these decades, house prices continuously grew until 2007; with the beginning of the Great Recession they fell down in 2008 and then started to increase in 2012-2013 (ONS 2017b). These trends were compounded by the restrictions on mortgage credit, which followed the economic recession from 2008, meaning that the level of average mortgage deposits doubled from around 13% of the overall buying price in 1991 to 22% in 2014 (ONS 2016a). Housing is considerably more expensive and less available in southern England as compared to the rest of Britain, with London being a particular outlier in terms of escalating housing costs.

Historically the transition to residential independence from the parental home for those who could not afford homeownership was supported by the availability of social rented housing. Significant numbers of social rented houses were built from the

1950s through to the 1970s. From the early 1980s however, the stock of social housing has been getting smaller as a result of fewer publically supported new build, and also successive Government's "Right to Buy" policies which allowed social tenants to purchase their homes at discounted values (Berrington and Stone 2014). As an example, in 2011 12.9% of women aged 30-34 living in social rented houses, where two decades ago the percentage was 16.4% (Coulter 2016). Social housing has thus become 'residualised' and only available to those in priority need, for example looked after young adults who are leaving local authority care, those who are homeless, or those with health problems. In past decades families with dependent children were given priority over those with no dependents (Rugg and Quilgars 2015). Thus childless young adults living in social housing (who form the sample in this analysis) are a relatively small proportion of the overall social renting population and represent a particularly disadvantaged and vulnerable group.

The private rented sector in Britain is thus becoming an increasingly important tenure across the life course, for both higher and lower income groups. Historically private renting was seen as a 'transitional tenure' fulfilling individuals' needs before they are able to move into their 'permanent tenure' – either owner occupation or social housing (Hoolachan et al. 2017). Recently however, more young people are renting - the percentage of young adults aged 25-34 renting privately reached 48% in 2013-2014 in England, where a decade ago the percentage stopped at 21% (Cole et al. 2016; Coulter 2016), and continuing to rent into their thirties when family formation is typically occurring. Unlike in other European countries where private rented accommodation is highly regulated, tenants in Britain have very few rights. As demand for private renting has soared in Britain, landlords have become increasingly restrictive in who they accept as tenants with tenants in receipt of housing benefit often rejected. Thus, private renting can be particularly insecure for more vulnerable groups. In Britain, family formation whilst co-residing in the parental home is unusual – family formation usually either coincides with, or follows residential independence from parents. Thus prolonged parent adult-child co-residence delays partnership formation and hence first births (Berrington and Stone 2014; Mulder 2006b). At the same time, lack of affordable homes, decreasing availability of social renting and rising house prices make private renting the only affordable solution for many young adults who live independently from parents (Berrington and Stone 2014; Lennartz et al. 2016;

Rugg 2010). As a consequence of the housing crisis, housing uncertainty has been increasing over the last decades, especially among young adults.

In the UK, security of tenure, and the security of knowing that you will be located in a particular geographical locality is particularly important for those with children who need access to affordable and high-quality pre-school childcare and good schools. In the UK, access to state schools is contingent on living in a school catchment area (particular neighbourhood) and often there is over-demand for the better performing schools leading to housing choice being an increasingly important part of family formation decisions (Hansen 2014).

Given these changes, it seems likely that there will have been changes in the relationship between housing tenure and family formation in Britain. In their 2010 work, Mulder and Billari included the UK in the “career homeownership” regime where homeownership is linked to the achievement of sufficient and stable incomes and is acquired via mortgages. In this regime, for many, homeownership is not the first housing tenure after leaving the parental home and renting is considered to be an acceptable alternative to homeownership, also for families in those countries where there is not a strong norm towards homeownership for families. In their theorization, homeownership in the UK was seen as a preferred setting for parenthood. In light of the changes in the housing market reported above, it seems that the British housing regime is now changing from a “career” to an “elite” homeownership regime, where mortgages are no longer widely accessible and homeownership becomes a prerogative of those who are wealthier, those who maintain a strong preference for homeownership, and those who are willing to remain employed so that they can service a mortgage. Despite the increasing difficulty for young adults in buying a house, the UK still seems to be a “career” homeownership regime in terms of social norms, given that aspirations for homeownership are still strong across the UK (Pannel 2016). As a consequence of this discrepancy between those who want to be homeowners and those who are, the positive relationship between homeownership and childbearing may no longer hold as a result of the increasing age of first-time buyers who may be postponing or even forgoing parenthood as a result of the competing costs of mortgage deposits and payments, with the cost of parenthood.

Levels of childbearing in Britain are relatively high in European perspective and the period trend is a little different than other western countries which more obviously saw a decline following the Great Recession (Comolli 2017). Instead, in England and Wales the period total fertility rate has fluctuated over recent decades, declining from 1.81 in 1992 to a low of 1.63 in 2003, before increasing steadily to a high of 1.94 in 2012, before dramatically declining to 1.70 in 2018 (ONS 2016b, 2016c, 2019). In common with most developed countries the mean age at first birth has risen (from 25.6 in 1991 to 28.8 in 2016) (ONS 2017c), but educational differentials in the age at which childbearing start and completed family size are significant. Low-educated British women tend to start their childbearing in their teens and twenties, whilst graduates more likely wait until their late twenties and early thirties (Berrington et al. 2015). Since social housing tenants tend to come from disadvantaged backgrounds their patterns of childbearing tend to be characterised by earlier childbearing and larger completed family sizes (Murphy and Sullivan 1985). In Britain, the role of social renting is important for family formation, given that this kinds of housing is more secure and better perceived for childrearing compared to the private rented sector (Di Salvo and Ermisch 1997; Ineichen 1981; Murphy 1984; Murphy and Sullivan 1985; Payne and Payne 1977). However, access to social renting housing is difficult for those who do not already have dependent children, and hence is less common among our sample of young childless women. Renters in the private sector are more heterogenous and include those who have postponed their transition to parenthood whilst attending higher education or whilst pursuing a career (this group will likely make the transition to homeownership at some stage - often facilitated by financial help from family), as well those who are more disadvantaged who find themselves in the private sector, possibly supported by welfare and housing benefits. No studies have hitherto been undertaken as to how prolonged stay in the private rented sector might affect the childbearing of these groups.

In short, in Britain homeownership is increasingly unaffordable. Many young adults are living in privately rented accommodation at later ages, and at stages in their life course when family formation typically takes place. We therefore ask the question as to whether the positive link between homeownership and transition to parenthood remains in recent years, or whether the childbearing behaviour of homeowners and private renters is nowadays more similar. As noted previously for France, the cost of

homeownership might compete with the costs of childbearing and childrearing (Courgeau and Lelièvre 1992); in such a context, the consequences might be to postpone childbearing among homeowners – which could translate into reduced childbearing – as well as an increase in childbearing among renters.

2.3 RESEARCH QUESTIONS

In order to investigate whether and how the link between housing tenure and first birth has changed over the last decades in Britain, our analysis addresses the following research questions. First we ask: *Has the association between housing tenure and the probability of conceiving the first child changed since 1991?*

Conscious of the fact that the association between housing tenure and entry into motherhood might change over time because the socio-economic and demographic characteristics of young people in the different tenure groups have changed over time (see, e.g. Fisher and Gervais 2011), we test whether results from our first research question are robust to the inclusion of a series of controls. In a second research question we ask: *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 price which makes homeownership unaffordable for many. Because housing affordability varies geographically due to local variations in housing costs, it is thus crucial to acknowledge within-country differences in local housing markets in influencing the transition to parenthood. We merge the individual prospective data with time-varying area-based data – at the Local Authority District (LAD) level – on house prices. Hence, our third and final research questions is: *To what extent does the relationship between housing tenure and the progression to the first birth differ according to the local house prices?*

3. DATA AND METHODS

3.1 DATA

The study is based on data from BHPS spanning 1991-2008 and UKHLS (the continuation of BHPS) for the period 2009-2016 (University of Essex Institute for Social and Economic Research 2018), as well as we used information on partnership status and first child's conception from the Consolidated Marital, Cohabitation and Fertility Histories data set (Pronzato 2011). Both BHPS and 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. We focus on a longitudinal sample of women who are childless at the time of their first interview and we follow them for at least two consecutive waves. Those women who joined the BHPS sample and were continuously interviewed until wave 18 in 2008, if still childless, continued to be followed in UKHLS¹ (Fumagalli et al. 2017). We are not able to examine the childbearing behaviour of men because in BHPS information about past childbearing was not collected directly within the panel questionnaires. We have to rely on the household grid in order to identify when a child is born. Since a quarter of young fathers are not living with their children in the UK (Berrington and Stone, 2004) these estimates based on the household grid will be incomplete for men.

Our sample is composed of women aged 18-42 who were living independently of the parental home (i.e. their housing tenure represents their own, rather than their parents'). We exclude 20 women who had adopted, foster, or stepchildren before conceiving their first natural child². We do not focus solely on couples but include all women, so that we consider all births, including those to single mothers. This is important in the context of Britain where a significant minority of births are to unpartnered women. We focus on Britain rather than the United Kingdom, because information on local housing markets at the level of local authority districts (LAD) was unavailable for Northern Ireland for much of the historical period. Whilst we do include the UKHLS ethnic boost sample from wave 1, we exclude the recent immigrant boost sample, because this only started in 2014/2015. The overall sample therefore consists

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

² Adopted, foster, or stepchildren compete for space in a household just like natural children, however we do not have information on the date when the adopted, foster, or step child started to live with the respondent.

of 5,082 women born between 1948 and 1997 (for a total of 17,371 person-years), residing in 374 different districts of Britain. On average, each woman is observed for 3.6 years, ranging from one person-year to 23 person-years. Among them, 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 UKHLS survey team (Knies 2018) are used to account for initial non-response and attrition from the sample over time. Non-response and sample attrition are higher in the first seven waves of the UKHLS than they were for the BHPS. Young adults who are unemployed, those living in urban areas and those living in privately rented housing are more likely to have been lost to follow up. Weighted fertility rates based on the BHPS and UKHLS are however similar to those collected within the vital registration system with a slight tendency for rates of childlessness to be underestimated (Berrington et al. 2015; Kulu and Hannemann 2016). Nevertheless, these two harmonized panels provide an unparalleled opportunity to examine the changing relationships between housing tenure and childbearing in Britain.

4. METHOD

We study the transition to parenthood using a multilevel logistic discrete-time event-history model with random intercept (Barber et al. 2000) which takes into account the hierarchical structure of our data with person-years nested within LADs. The baseline hazard is the woman's age, grouped into categories (18-24, 25-29, 30-34, 35-44). Women enter the sample when they are first interviewed or after their 18th birthday – in both cases when they start living independently from parents. The event of interest is the woman's first conception that leads to a live birth. Otherwise, women are censored at the last available wave, when they attrit from the survey, when they return to the parental home, or when they reach age 44, whichever occurs first. Overall, the two-level discrete time logit model has the following form:

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

³ We only use the cross-sectional weights since the longitudinal weights are only valid for those who had responded to all previous waves.

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 being constant (i.e. if a woman is born outside UK); Z_{jt} is a 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 assume that the random intercept is normally distributed, with zero mean and unknown variance, which represents the unobserved heterogeneity of the LADs, once included all the individual- and LAD- level covariates in the model.

Our first research question asks whether the association between housing tenure and the probability of conceiving the first child has changed between 1991 and 2016. To answer this question, we model the probability of conceiving a first child using the multilevel logistic discrete-time event-history model described above. In this model (Model 1), the key explanatory variable is the woman's current housing tenure, which distinguishes between homeownership⁴, private renting, and social renting. Housing tenure, like all the explanatory covariates is lagged by one year. It is included in the model in interaction with the survey year, which is grouped into four periods: 1991-1999; 2000-2007; 2008-2012; 2013-2016. The choice of the cut-off points for the four periods reflects the timing of changes in the British housing market: the 1990s witnessed a sharp increase in house prices; during the 2000s the private rented sector saw a marked increase; 2008 signed the start of the Great Recession during which house prices fell, and 2013 the post-crisis period during which house prices started to grow again (Stephens et al. 2018). We also include an interaction term between the woman's age and her current housing tenure, in order to capture the changing role of tenure across the life course, for example, private renting is widespread among those in their twenties, but more unusual among those in their late thirties.

Our second research question asks whether any changes observed in the effect of housing tenure over time are explained by the changing socio-economic and

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

demographic characteristics of individuals and their households residing within the different tenure groups. To this end, we estimated a second model (Model 2) where we add the woman's partnership status (single, married, cohabiting), whether she is foreign-born, and her educational level. We contrast those with low education (those with secondary education who left school at 16) with those with medium education (who typically stayed on in education post-16 and obtained advanced level qualifications, or nursing or teaching qualifications), and high levels of education (typically those with a first or higher degree). Given the strong social polarization in the timing of motherhood in the UK (Berrington et al. 2015) we interact education with the baseline duration (i.e. woman's age). Other control variables include; parental social class (mother's and/or father's highest class according to the National Statistics Socio-economic Classification (NS-SEC) classification with 5 categories, namely: management and professional; intermediate; small employers & own account; lower supervisory & technical; semi-routine & routine; Rose and Pevalin 2003); economic activity (full-time student, employed, unemployed, inactive); equivalised income categorised in quintiles (derived from the annual household income and adjusted to take into account the number of household members using the modified OECD equivalence scale; see Hagenaars et al. 1994); an overcrowding index (a household is overcrowded if the total number of people in the household exceeds the number of rooms); and time since moved into the current dwelling (zero for those who moved that year, one year, two years, three years or more after move). This variable captures anticipatory household moves prior to childbearing that have been found previously in the literature (Ermisch and Steele 2016; Kulu and Steele 2013). In sensitivity analyses (not presented) we interact these anticipatory moves with tenure but find that the effect is similar across tenure groups^{5,6}.

Our third research question explores how the housing market context shapes the probability of having a first conception in private renting and social renting as opposed to homeownership. In Model 3, in addition to all controls included in Model 2, we add

⁵ We did not control for duration of employment because we had information only about the current employment at the time of interview for all waves (employment history was asked just in a few waves).

⁶ One might argue it would have been important to control for partnership duration to control for the changing compositional make up of women across the tenures. We deliberately abstain from including such a variable because from preliminary analyses we verified that it would introduce a very large selection effect – i.e. those who are still childless who have been in a coresidential relationship for more time have a low probability of having a child.

a cross-level interaction term between house prices measured at the LAD level and housing tenure, which allows the effect of housing tenure to vary according to neighbourhood characteristics. Our chosen measure of house prices is the value of the lower-quartile house price in each LAD, i.e. the price of the 25th cheapest house in a given LAD and year. The statistics on lower-quartile house prices are part of the House Price Statistics for Small Areas release (ONS 2017d), reporting quarterly statistics for a range of national and subnational geographies for different types of dwelling for England and Wales since 1995⁷. For Scotland, annual statistics on lower-quartile house prices for a range of subnational geographies are released since 1993 (Scottish Government 2017)⁸. The lower-quartile house price is considered as a marker of local area affordability. First time buyers will generally be able to afford houses with fewer bedrooms and square meters than the average houses sold in the area. For each year, from the distribution of the lower-quartile house prices in the different LADs, we create a categorical variable, which splits this distribution into quintiles. This variable measures the position of the average annual lower-quartile house price in a given LAD relative to the country's overall distribution. In other words, the variable measures whether the lower-quartile house price in a given LAD is among the 20% cheapest (first quintile – including areas within Liverpool and Nottingham), up to the 20% most expensive (fifth quintile – such as Kensington and Chelsea Borough of London, Oxford, and Winchester) in a given year. The range in this measure increased markedly over the study period, with house prices in London accelerating at a faster rate than for other areas.

Table 1 shows the person-years distribution of socio-economic and demographic characteristics according to housing tenure. Owner occupiers tend to be older and more likely to be married than private or social renters, who tend to be younger and more likely to be unpartnered. Educational attainment among homeowners and private renters is similar, but social renters tend to be less educated. Whilst the vast majority of childless homeowners are employed, a significant proportion of private renters are still in education. The selection of particularly vulnerable (childless) women into social housing is reflected in the fact that around one third of the person-years are

⁷ For England and Wales the 1995 house price data were also used for 1991-1994.

⁸ For Scottish districts the 1993 house price data were also used for 1991 and 1992.

characterised as either unemployed or not economically active. Homeowners dominate the two top income quintiles whilst social renters are more prevalent in the two lowest income quintiles. Homeownership is associated with larger properties, with two thirds of the person-years of both social and private renters in overcrowded households, as compared with just one third of owner occupiers. Private renting is associated with greater levels of mobility, both international and internal. Further analyses of how the composition of the tenure groups changed over the 25-year period (available on request) show that during the 2010s private renting becomes widespread also among older age groups. Homeownership, initially widespread among all educational groups, in the more recent time period becomes dominated by the highly educated, and the mean age at homeownership increases. Social renting becomes increasingly dominated by those with the lowest levels of educational attainment reflecting the residualisation of this sector.

| | 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 |
| Equivalent 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 |

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

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

5. RESULTS

To aid interpretation we estimate predicted annual probabilities of conceiving a first child⁹ for each hazard model that we run and present them graphically. Full model results are presented in Appendix Table 1A. Estimated fertility rates among our sample of childless women show a pattern consistent with vital registration data - showing that fertility rates fell rapidly during the late 1990s to reach the lowest values of the period in early 2000s, a subsequent increase in the following years and recent rapid declines seen since 2012.

Figure 1 shows the predicted annual probability of conceiving a first child according to housing tenure and calendar period from Model 1. The predicted annual probability is significantly higher for mothers who are homeowners compared to those who are private renters in the first three periods, i.e. until 2012. However, in the last period, i.e. during the years 2013-2016, the confidence intervals for homeowners and private renters overlap (and the point estimates are not statistically different at the 1% significance level). We find that the probability of conceiving a first child as a private renter did not change much across the four periods, remaining at 3.8% in 2013-2016. However, the probability of conceiving a first child among homeowners is significantly lower in 2013-16 than it was in the previous period, reducing from 8.2% in 2008-2012 to 5.6% in 2013-2016. In other words, the overall decline in the probability of conceiving a first birth (which is consistent with the downturn in period fertility in Britain since 2012) was driven mostly by a decline among homeowners, and to a lesser extent a decline in childbearing among social renters. In contrast, rates of entry into first parenthood among private renters held up during the housing crisis. Consequently, the difference between birth rates to homeowners and private renters has reduced markedly.

The probability of having a first child as a social renter does not show any meaningful change over the period of study. Given the scarcity of childless women in this particular tenure group, the confidence intervals are considerably wider for the social renters, which makes it difficult to interpret the results. Yet, the point estimates

⁹ We used the margins command in Stata, setting the control covariates at their average level and the random effect was fixed at its mean value of zero (StataCorp 2017; Williams 2012).

suggest that first conceptions among social renters have declined during the most recent period, touching its minimum at 2.5% in 2013-2016.

In sum, a positive link between homeownership and first motherhood is clearly visible during the 1990s and the 2000s, but becomes negligible in the most recent period 2013-2016.

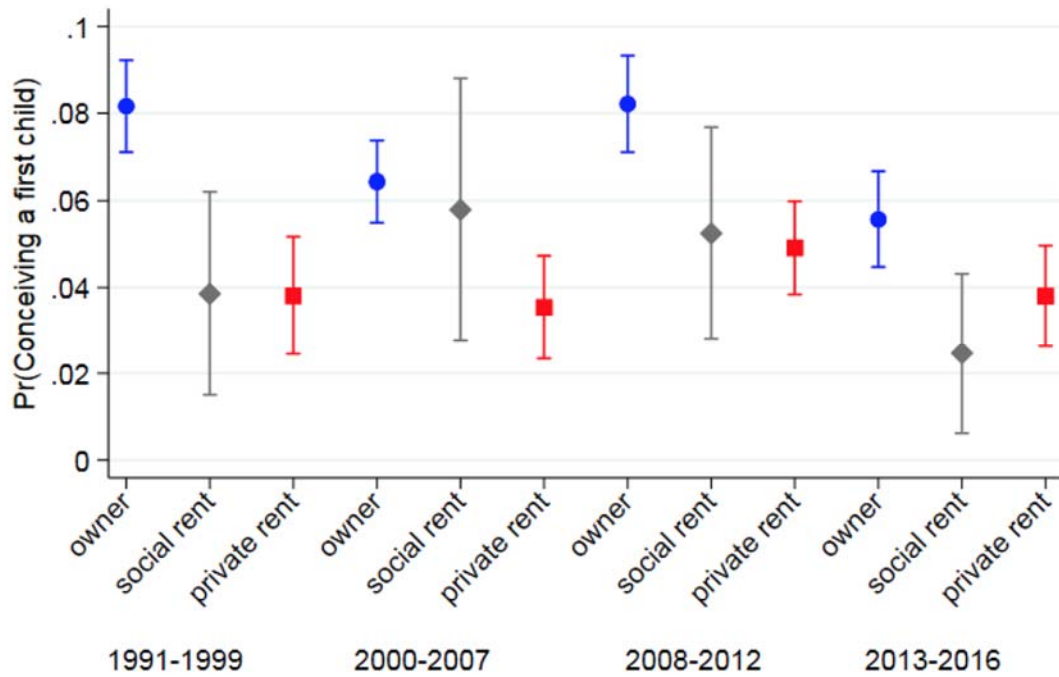


Figure 1: Results from Model 1: Predicted annual probabilities of conceiving a first child according to calendar period and housing tenure. 1991-2016

Note: To estimate predicted annual probabilities, housing tenure and calendar period are allowed to vary, whilst age group is kept at its mean value

Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study

Our second research question asks whether the changing relationship between tenure and entry into motherhood is explained by the changing composition of the tenure groups. Model 2 (Appendix Table 1A and Figure 2) shows that controlling for women's socio-economic and demographic characteristics does not alter the substantive finding. The predicted annual probability of conceiving a first child is significantly higher for homeowners compared to private tenants in the first three time periods, but not statistically significantly different in the period 2013-2016 (Figure 2). Hence, the temporal change in the relationship between homeowners and private renters emerges clearly, as does the decline in the probability of conceiving among homeowners in the most recent years, even after controlling for a large set of demographic and socio-economic controls.

For reasons of space we do not discuss in detail relationships between control variables and the outcome. However, it is reassuring that all of the control coefficients from Model 2 (Appendix Table 1A) are in line with expectations from published literature (Berrington et al. 2015). For example, educational enrolment was negatively associated with childbearing and there is a strong interaction between education and age: at younger ages, the probability of conceiving a first child is highest among those with lower levels of education, whereas at older ages a positive relationship between education and entry into motherhood is seen. Entry into motherhood is far more likely among married women, intermediate for cohabiting women, and lowest for those unpartnered. Overcrowded houses are not associated with a higher probability of conceiving a first child. Also, we see some evidence of anticipatory moves whereby those who had moved into the property in the last year were more likely to experience a conception than those who had lived there for at least three years (this anticipatory effect was constant across the housing tenures).

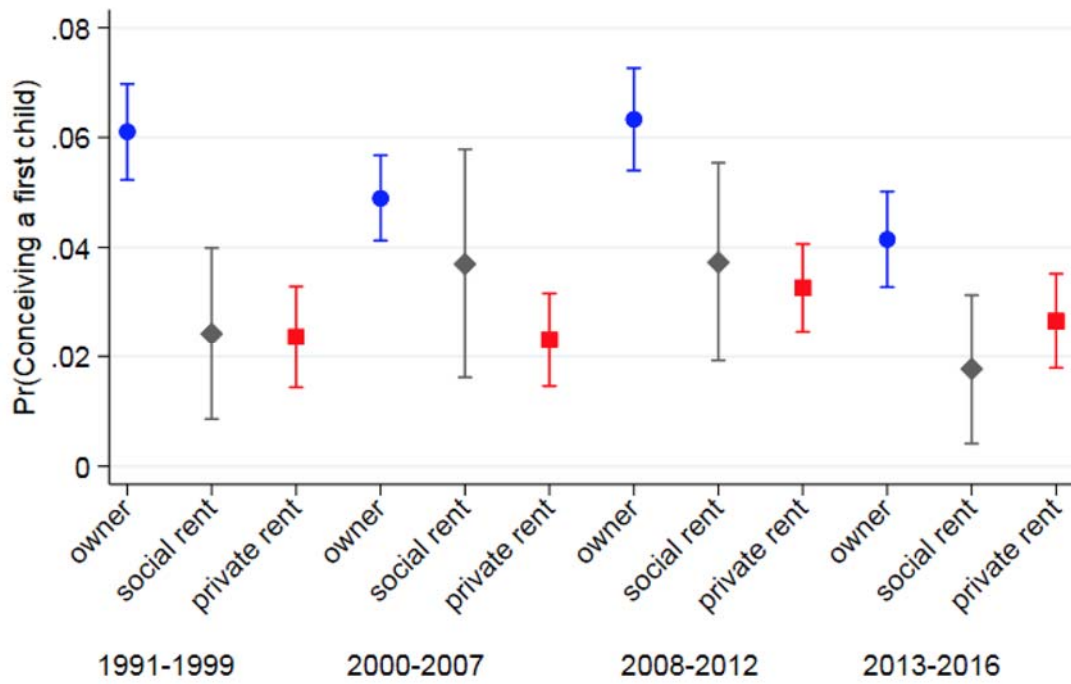


Figure 2: Results from Model 2: Predicted annual probabilities of conceiving a first child according to calendar period and housing tenure. 1991-2016

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

Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study

The significant interaction between age and tenure shown in Model 2 (Appendix Table 1A and Figure 3) suggests that the effect of housing tenure on entry into motherhood depends on the woman's age. It is those from the "Generation Rent" that, in recent years, are just as likely to start a family as homeowners or private renters. For the youngest women aged 18-24, the probability of conceiving a first child among homeowners is higher than it is for private renters until 2012, whereas in the latest time period, 2013-2016, the probability to have a child as a homeowner has nearly halved (from 6.9% in 2008-2012 to 3.7% in 2013-2016) and the confidence intervals overlap, with the point estimates for the two tenure groups not statistically different at 1%. In contrast, the probability of conceiving a first child among private renters is the highest and over 2.0% in the last two time periods, thus showing an overall increasing trend over time. For women aged 25-29 and 30-34, the predicted annual probability of conceiving a first child for homeowners remains significantly higher than it is for private renters for all time periods. However, the probability to have a child as a homeowner has declined also for those in their late twenties and early thirties during the latest period, suggesting that in the future the probability to conceive a first child might continue to decline and become more similar also among homeowners and private renters in this prime childbearing age group. To sum up, in the latest time period, 2013-2016, entry into motherhood has declined among homeowners aged 18-29, narrowing their propensity to have a first a child to that of private renters, suggesting a potential postponement of motherhood for those who chose to buy a house. In contrast, for women aged 30-34 the probability to have a child as a homeowner remains as high as in 1991-1999 also in the latest time period, which could be due to a recovery effect of motherhood. Finally, for women aged 35-44 the probability to have a first child is much lower and is equally likely for homeowners and private renters for all time periods. Thus for those who have postponed entry into motherhood until their mid-thirties, first birth is found to be independent of tenancy status, suggesting that for women approaching the end of their reproductive period, tenancy status is less relevant than for example, their aspirations for motherhood, once other socio-economic and demographic characteristics are controlled.

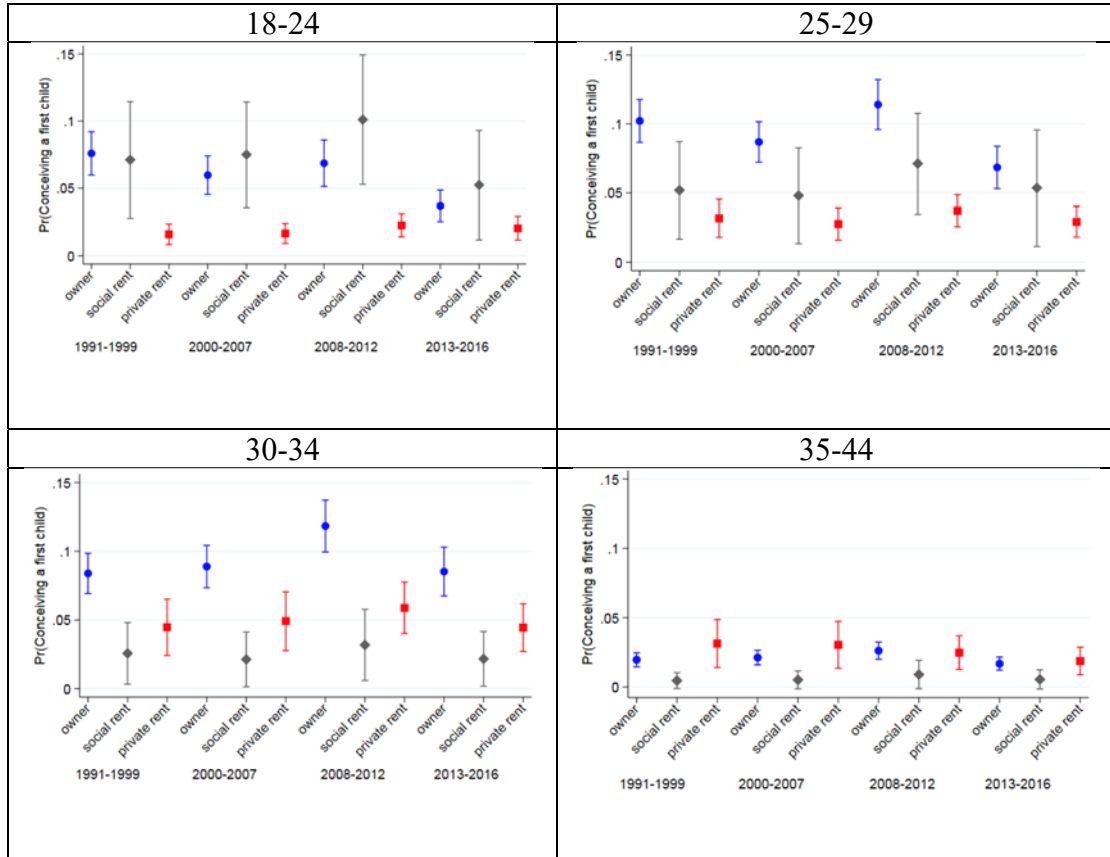


Figure 3: Results from Model 2: Predicted annual probabilities of conceiving a first child according to calendar period, housing tenure and age group. 1991-2016

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

Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study

In a final step (Model 3 Appendix Table 1A) we add a control for housing affordability, as measured by the distribution of the lower-quartile house price in the Local Authority District (LAD), as a second-level covariate. A somewhat complex pattern emerges (Figure 4). Where housing is least and most expensive, conception rates are significantly higher among homeowners as compared with private renters, but there are no tenure differences in LADs with average housing affordability. When affordability is at an average level the confidence intervals of the probability of becoming a mother for homeowners as compared private renters overlap (and the point estimates are not statistically different at the 1% significance level).

In summary, context plays a role in shaping the transition to parenthood in private rented accommodation as opposed to owner occupied accommodations: in areas where the house prices are higher – or lower – than the country’s average, the size of the difference in the propensity to have a first child between homeowners and private tenants is larger; in areas where the house prices are in line with the country’s average, the likelihood of entering parenthood is similar for homeowners and private renters. We put forward potential explanations for these patterns in the discussion.

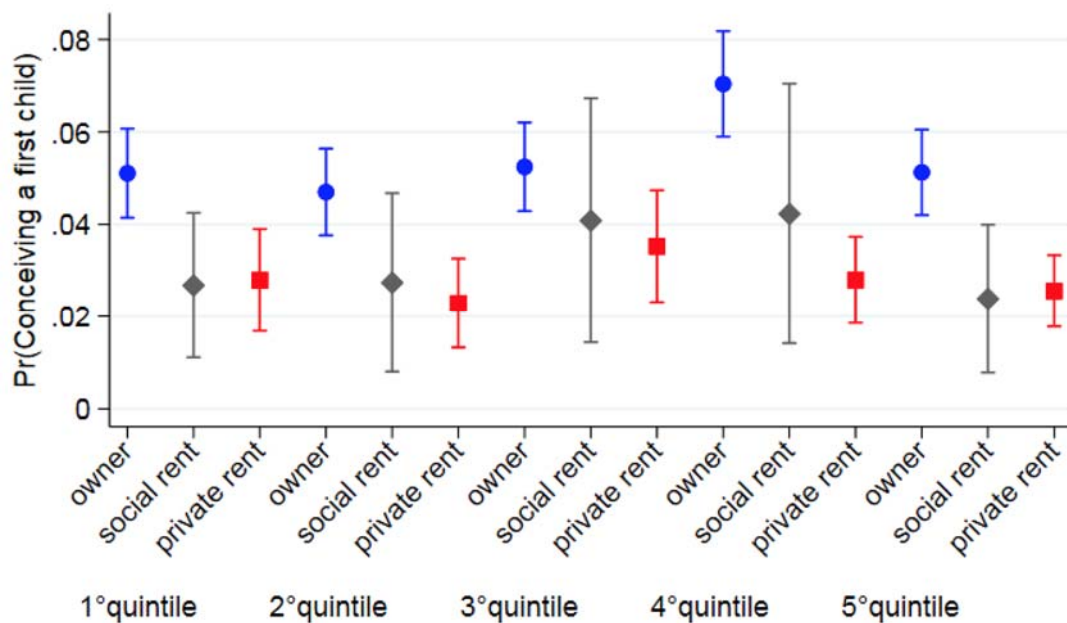


Figure 4: Results from Model 3: Predicted annual probabilities of conceiving a first child according to lower-quartile house prices (in quintiles) and housing tenure. 1991-2016

Note: To estimate predicted annual probabilities, housing tenure and lower-quartile house prices vary, whilst calendar period, 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

Source: Wave 1-18 of British Household Panel Survey and wave 1-7 of United Kingdom Household Longitudinal Study

5.1 ADDITIONAL ANALYSES: ANTICIPATORY MOVES AND ROBUSTNESS CHECKS

We undertook a series of additional analyses and robustness checks (not shown but available upon requests from authors). First, the relationship between housing events and childbearing is reciprocal – often individuals move home in anticipation of starting a family. In Britain, as the prospect of being able to afford homeownership recedes to later and later ages, it seems plausible that increasingly, individuals and couples will make anticipatory moves within the private sector, e.g. moving from a private-rented accommodation to another which is e.g. bigger, closer to (higher-quality) schools, etc. For this reason, we included a three-way interaction term between the time since last move, housing tenure, and calendar time to monitor differential traces of anticipatory moves by tenure and period. The findings did not reveal any specific differential pattern of anticipatory moves between tenants and homeowners, nor a meaningful change of such a pattern over time. We also tested an interaction term between housing tenure and

education, but results did not reveal any educational differences in the role of tenure on entry into motherhood.

We ran a series of robustness checks to verify the stability of our estimates to changes in how covariates were categorised. We used a measure of housing affordability (i.e. the ratio between house prices and workplace-based earnings at the lower-quartile level) in place of house prices and ran a robustness check based only on England and Wales (affordability data for Scotland are not available). In this case, the propensity to have a first child was significantly higher for homeowners than for private renters not only in areas where housing affordability was lower or higher than the country's average, but also in areas where housing affordability was in line with the country's average. Furthermore, we modelled the time since last residential move in alternative ways including as a continuous covariate (both linear and quadratic terms); as a conditional linear spline for the time since move with knots at zero and two years; and as a dummy variable indicating the year during which there was a move – results proved to be very stable. Finally, our results were robust to the inclusion of a control for geographical region, which distinguished Northern, Midlands, London, Southern, Wales and Scotland. We also re-run the models with robust standard errors (clustered at the LAD level) in order to take into account of the correlation among LADs that are geographically neighbouring; results remained substantially the same.

6. DISCUSSION

This paper adds to the discussion of how young generations are responding to the UK housing crisis. Rates of homeownership, particularly at younger ages, have plummeted. As a consequence, there has been a rapid increase in the number living in private rented accommodation into their late twenties. They are the “Generation Rent”, characterized by inter-generational housing inequality, unaffordability, and uncertainty. This paper is the first to exploit how the “Generation Rent” face the transition to parenthood in contemporary Britain.

Our study uncovered a new family formation dynamic - a change over time in the relationship between housing tenure and entry into motherhood. The likelihood of becoming a parent whilst in owner occupied accommodation plummeted in recent years, and today it is similar to the likelihood of becoming a parent whilst in private

rented accommodation, especially among youth adults aged 18 to 24 years old. This result signals a radical change compared to the recent past when buying a house together was often the first step prior to family formation.

The disconnection between homeownership and entry into parenthood has significant implications for parents and their children. In fact, the specific nature of the private rented housing market in Britain remains un-family friendly. Private rented accommodation are insecure in terms of when families could be asked to leave, and unregulated as compared with many other European countries (Judge and Tomlinson 2018). Private renters face short-term rental contracts of six months, one year, or quarterly rolling contracts, all of which can be terminated by the landlord at any time during the tenancy with a short notice period. Of particular concern to the parents of children in private rented accommodation is that if they move house they will have to move their children from one school to another. Clearly for some, private renting allows flexibility e.g. to move location in order to take up a new job opportunity. Social housing, traditionally very important in Britain in terms of completed family size, is becoming increasingly marginal in the transition to parenthood. Low-income young people that historically would have formed a family as social tenants are now often in precarious private renting, or in some cases where housing is more affordable have to manage high mortgage costs.

Our results indicate that the changing association between housing tenure and first birth is triggered by a decline in fertility among owner occupiers. We cannot tell from our data what the underlying reasons for this decline are. We hypothesise that homeownership is progressively competing with the cost of childbearing, especially since the majority of owner occupied homes are purchased with a mortgage. Homeownership increasingly requires households to have a dual income and hence buying a home encourages women's attachments to the labour force. Second, in a socio-economic context where increasing economic difficulties challenge homeownership, homeowners might have become a more selected group characterised by (unmeasured) orientations towards 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.

Local housing markets appear to play a role in shaping the transition to parenthood, but the relationships are not linear, probably reflecting a number of counteracting forces. In areas where the house prices are in line with the country's average, i.e. Cardiff, Dover, Edinburgh, and Southampton, the likelihood of entering parenthood is similar for homeowners and private renters; compared to the other areas, here private renters display the highest propensity to have a child. In areas where housing is cheaper, or more expensive, homeowners tend to have higher rates of childbearing than private renters. In the most expensive areas which include London, those who buy a house before age 45 are a very select group, namely wealthy young people who are determined to settle down and start a family. This then trumps the aforementioned need for a dual income: individuals buying homes in London are likely to have other sources of income e.g. from family or inheritance. At the other end of the affordability, where housing is cheaper we suggest that the need for a dual income is reduced and homeownership can often be secured in advance of parenthood. Local housing markets have been identified at the LAD level; nevertheless, local authority districts could potentially be too large a geographical area - and ideally we would have liked to have been able to use local housing information at a smaller geographic scale, but currently none is available.

The rise in private renting does not appear to be driven by changing tenure preferences. On the contrary, the vast majority of young Britons still aspire to become homeowners (Marshall and Smith 2016; Pannel 2016). Qualitative evidence from Scotland suggests that many young people regard homeownership as the only suitable tenure to start a family (Hoolachan et al. 2017). However, homeownership is out of reach for many young people due to rising unaffordability of homeownership. To put in Hoolachan et al. (2017: 72)'s words, young adults are faced with a “*double disadvantage of housing and income insecurity*”. Yet, housing insecurities are under-researched in studies related to youth's transition towards the adult status. This paper has focused on one of such transitions, the transition to parenthood, and has shown that the context where the first child is born is gradually changing: owner occupied households are no longer the main arena for childbearing, at least among Britain's

“Generation Rent”. To the best of our knowledge, this is the first time that the hypothesis of a positive link between homeownership and first birth is challenged empirically. New parents today are likely to be exposed to new sources of uncertainty compared to previous generations: in this paper, we posit the role of housing uncertainty.

7. APPENDIX

| | 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 |
| 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 |
| 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#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 |
| 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 |
| 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 |
| 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 |
| 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 |
| Random part | | | | | | |
| LAD (variance) | 0.112 | 0.034 | | 0.085 | 0.032 | |

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

Notes: (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.

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