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Declining Home Ownership among Young Danish Adults:

An Affordability Problem or Just Postponement?

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Preface

This research project has been financed by the following funds and institutes in Denmark: Realdania Fonden, Det Kommunale Momsfond, Center for Bolig og Velfærd and AKF, Danish Institute of Governmental Research. The authors would like to thank Associate Professor Morten Skak (Department of Business and Economics, University of Southern Denmark), Senior Researcher Hans Skifter Andersen (SBi, Danish Building Research Institute, Aalborg University) and Research Fellow Christophe Kolodziejczyk (AKF) for comments on an earlier draft. Helpful suggestions and feedback on the empirical analyses from Director of Research Jacob Nielsen Arendt (AKF) are also acknowledged and appreciated.

Chantal Pohl Nielsen
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Summary

The share of homeowners among young Danish adults has declined over the period 1985-1995, whereas changes have been modest since then. The timing of entry into home ownership has also changed. Recent age cohorts have not entered home ownership as quickly as older cohorts, but they tend to catch up with the levels of home ownership achieved by previous cohorts by the time they reach their mid- to late-30s. Cohorts born between 1971 and 1980 are also older when they purchase their own home compared with cohorts born between 1956 and 1970, but it is still premature to say whether they will achieve shares of home ownership that are comparable to those of the older cohorts.

Our descriptive data suggest that the housing market has become less accessible to lower income groups. In 1985 55% of the 35-39-year-olds in the lowest income quartile owned their own home. The same was true for only 21% of the 35-39-year-olds in the lowest income quartile in 2006. By comparison, the corresponding shares were 65% and 62% for similarly aged individuals in the highest income quartile in 1985 and 2006, respectively. However, investigating key socio-economic characteristics of these different income groups reveals that they have of course changed over time. Therefore, we investigate whether the apparent increase in income-related inequality in home ownership also holds once such underlying changes have been taken into account.

More specifically, we use discrete time duration models to understand how the importance of income – as captured by income quartile indicators – has changed over time. This is first done by considering changes across birth cohorts and secondly across calendar time. With respect to the latter, we distinguish between three specific periods in the Danish housing markets: (i) 1985-1993 when prices were declining, (ii) 1994-2003 when prices were rising moderately and (iii) 2004-2006 when prices were sharply increasing.

Our results show that even after taking account of changes in underlying socio-economic characteristics, home ownership has become more difficult to obtain for lower income groups. The changes across birth cohorts are not very large, thereby suggesting that the covariates included in our model capture are quite successful in capturing the underlying reasons why home ownership has increasingly become out of reach for the poorest. For the richest our results show that home ownership has become more widespread among younger cohorts even after taking account of changes in socio-economic factors such as delayed couple formation and reduced numbers of children.

Predictions based on our estimated duration models show that high income individuals are more likely to purchase their own home both when real property prices are declining and when they are increasing sharply as compared with periods with more moderate price increases. In other words, the rich seem able and willing to enter the housing market both in times of recession and expansion. The poorest individuals are, on the other hand, more at risk of unemployment and are therefore least likely to enter the housing market in times of declining house prices.

1 Introduction

Home ownership rates have declined among young Danish adults over the past two decades. Yet recent studies suggest that there are still strong preferences for home ownership in Denmark – also among young adults. A survey conducted by Kristensen & Andersen (2009) in 2008 reveals that 70% of the people interviewed state that home ownership is their preferred type of tenure.[1] Preferences are strongest for young couples, but also many young singles dream of owning their home. One thing is to dream about owning a home – quite another is actually being able to do so. Explanations given in the survey for not yet owning one's home include prohibitively high house prices, unwillingness to reduce other spending and expectations that housing needs and incomes will change within the next five years.[2]

Before the onset of the financial crisis, there had been a long period during which house prices in Denmark had increased – particularly so in large cities. During this period concerns were voiced that home ownership was becoming increasingly difficult for young potential first-time buyers and that differences in home ownership rates would create increased generational inequality.[3] The underlying reason for this concern is that home ownership is traditionally associated with a range of positive socio-economic benefits both in the short and long term: i.e. potential for substantial long run capital gains[4], more favourable borrowing opportunities over the short to medium term, tax benefits, the fact that owner-occupied dwellings are often larger homes situated in better neighbourhoods etc. (see also e.g. Megboulugbe & Linneman 1993; Rossi 1980; Myers 1981 and Masnick 2001 for descriptions of home ownership benefits from both the individual and societal points of view).

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1 The question in the survey is formulated as follows: "What housing tenure do you want to obtain within the next five years?" As Andersen (2009) correctly points out, answers to this question may contain elements of both preferences and (more or less realistic) expectations. Moreover, in addition to conventional home ownership, Denmark has private cooperative home ownership (*andelsboliger*). If one includes private cooperative home ownership as a type of home ownership, the share preferring home ownership increases to almost 77%.

2 Interviewed again in 2009, only 5-6% stated that the financial crisis had changed their preferences (Andersen 2009). Those who did were typically younger people who found that the recent decline in housing prices had made home ownership more realistic.

3 See e.g. Verbist & Lefebure (2008) and Saunders & Siminski (2005), who demonstrate the importance of including imputed rent (also known as non-cash housing advantage) when evaluating distributional effects of home ownership in Belgium and Australia, respectively. Both conclude that including imputed rent has an equalising effect on the distribution. In our analysis, we consider only those, who have not yet become home owners, so we use real disposable equalised income.

4 While controlling for e.g. saving behaviour Di et al. (2007) find strong evidence that home ownership in itself results in greater future wealth. In other words, higher observed wealth accumulation among home owners is not only about self-selection in the sense that wealthier (a reflection of higher savings propensity) and higher-income individuals tend to prefer to own their homes and do so earlier in their life cycle. Their results are quite convincing because the study covers a period with "normal" cycle ups and downs in the housing market. The authors do caution that "[t]he finding wealth accumulation over shorter spells, however, are highly sensitive to the time period analysed here" (Di et al. 2007: 189). See also Krivo & Kaufman (2004) and Flippen (2001) for interesting analyses of racial inequality in housing equity.

Rising house prices are of course not the only factor affecting young adults' transitions into first-time home ownership. During the same period certain social and demographic changes have worked against early home ownership. Relationships and families are established later on in life. Recent generations start and complete their educations later than previous cohorts and the average length of education has increased. On the other hand, during the same period, real incomes have grown, unemployment levels and mortgage interest rates have been low and many new financial products have been introduced. These changes should make home ownership more accessible.

The conventional wisdom is that the choice between renting and buying a home depends on financial status, particularly an individual's prospects of a stable future income are important. A study by Leth-Sørensen (2004) documented that the share of male homeowners in Denmark aged 18-39 had declined during the period 1980-1993. He concluded that it had indeed become more difficult for young Danes to purchase their first home during that period and that the most important factors determining home ownership were occupational position, urbanisation and partner's employment status.[5] Leth-Sørensen (2004: 163) concluded his analysis by raising a concern about housing tenure and inequality in Denmark: "Today, Danish society is increasingly segregated: homeowners have many resources, and tenants have few resources." Both the housing market and the general economic conditions have changed substantially since the mid-1990s, thereby warranting a new and updated analysis of the development since then.

This study has two main purposes. This first goal is to describe the extent to which home ownership has fallen among young adults in Denmark and to find out whether the observed decline reflects a more or less permanent reduction or whether the transition to first-time home ownership simply takes place at increasingly older ages. The second goal is to explore the underlying reasons for changes in the timing of home ownership. Is it because home ownership has become less affordable or is it a result of changes in underlying life cycle factors? These are of course different, but not necessarily mutually exclusive, explanations. Affordability is a question of purchasing power, i.e. income in relation to the cost of owning a home. We approach the issue of purchasing power by examining how the effect of income on the probability of becoming a home owner changes over time. We start by considering changes across birth cohorts. Then we analyse changes across different periods of calendar time, where house prices were markedly different in terms of levels and trends. We distinguish between three specific periods in the Danish housing markets: (i) 1985-1993 when prices were declining, (ii) 1994-2003 when prices were rising moderately and (iii) 2004-2006 when prices were sharply increasing. In our analyses we account for changes in socio-economic characteristics to control for changes in life cycle event patterns across cohorts.

The next section provides an overview of the findings of previous research and highlights the contribution of our study. Section 3 presents and describes the data underlying the analysis, including an overview of the changes observed in home ownership rates over time both across birth cohorts and across income quartiles. Section 4 describes the methodology we use

[5] In Copenhagen, upper-level salaried employees were most likely to own their homes. In rural areas, skilled manual workers had the highest probability of owning their homes.

to examine transitions to first-time home ownership, namely discrete time duration analysis. The results are presented in section 5 and conclusions are drawn in section 6.

2 Previous research

Home ownership has traditionally been thought of as the ultimate goal of a housing career. Literature in the 1970s and 1980s found strong correlations between an individual's stage in the life cycle and type of housing tenure (e.g. Kendig 1984; Payne & Payne 1977; Pickvance 1974). "Households were seen to simultaneously ascend three discrete but related ladders: an employment career; a life stage progression (implicitly raising children); and a housing career" (Beer & Faulkner 2007: 2). More recent research by e.g. Clapham (2002) and Williams (2003) has shown that the pathways that individuals take in the housing sector are characterised by a great diversity of directions and outcomes. Beer & Faulkner (2007) therefore suggest using the term 'housing transitions' rather than 'housing career' to indicate movement, but not necessarily purposeful steps up the traditional housing career ladder. Mudd, Tesfaghiorghis & Bray (2001), by contrast, conclude that the 'housing ladder' – leaving home to rent, then to purchase and finally outright own later in life – remains the dominant pattern.

Although it may be true that housing transitions are becoming more diverse for younger cohorts, home ownership appears to remain a goal for many and for a number of different reasons – not only in Denmark (c.f. Kristensen & Andersen 2009; Andersen 2009) but also elsewhere in Europe (see e.g. Cabré & Módenes (2004) for Spain, Mulder & Smits (1999) for the Netherlands, Bernardi & Poggio (2004) for Italy), the United States e.g. Masnik (2001), Fisher & Gervais (2009), Canada (Turcotte 2007) and Hong Kong (Wah 2000). Home ownership is seen as the core of the American Dream, see e.g. Masnik (2001), Gabriel & Rosenthal (2005), Carter (2007). Cabré and Módenes (2004) explain that home ownership in Spain is not so much a tradition, but rather a conscious strategy adopted by households striving to climb up the socio-economic ladder. Wah (2000) argues that in the case of Hong Kong, at least, the home ownership ethos is in fact a social construction that is strongly encouraged by the government's home ownership biased policy. The paper argues that this "pro-ownership and anti-rental policy" widens social inequalities as measured by social class, gender and generations. Mulder & Smits (1999) also focus on the inter-generational aspect of tenure choices, but in the Dutch context. They find that children of homeowners are more likely themselves to become homeowners.

In spite of what seems to be rather persistent desires for home ownership, there is also evidence that home ownership rates are declining among young adults in several countries. As mentioned earlier, previous analysis of Danish data (Leth-Sørensen 2004) shows that young (age 20-39) home ownership rates had declined over the period 1980-1993. More recently, Fisher & Gervais (2009) have documented that young (age 25-44) home ownership rates in the United States has declined markedly over the period 1980-2000 with only partial recovery in the period 2001-2005. Fisher & Gervais (2009) note that these changes have taken place in spite of policy initiatives and developments in the mortgage market that ought to have made home ownership more accessible. They provide two main explanations: a drop in marriage rates and an increase in earnings risk. Baxter & McDonald (2004) also observe declining home ownership rates among young adult Australians. Their analysis suggests, how-

ever, that young Australians are postponing rather than reducing entry into home ownership. They find that the birth cohort has little effect on the chances of acquiring a first home and the data even suggest that younger cohorts were somewhat more likely to own than older cohorts. Interpreting birth cohort as a measure of changing affordability across time, Baxter & McDonald (2004) conclude that, at least until the year 2000, affordability has not hindered home purchase among young Australians. Using discrete time event history analysis to investigate the effects of covariates on both the likelihood and the timing of home ownership, Baxter & McDonald (2004) find that the falls in home ownership rates observed at young ages are associated with delayed relationship formation, particularly delayed marriages. Having children is also found to delay home purchase. Taking a survey approach on potential first-time buyers in Australia, Kupke (2008) finds that housing market conditions (house prices, having saved up for a deposit and low interest rates) are substantially more important to decisions taken about whether or not to buy a first home than are family-related factors such as the birth of a child, marriage/relationship change or a new job. By contrast, for the case of Denmark, Andersen (2009) finds that the two main reasons among Danish potential first-time buyers for not having done so yet, are that they expect a higher income within the next five years (79% of the less than 30-year-old respondents state that this is an important reason) and they expect that their family situation will change within the next five years (86% of the same group find this reason important). The third most important reason is not being able to find affordable housing in the preferred area (44%), whilst just 19% state that they cannot get a mortgage.[6] So it can be concluded that the national context is very important for understanding changes in home ownership rates.

Irrespective of whether declining home ownership rates represent a reduction of life time chances of becoming homeowners for younger cohorts or simply a deferment to older ages, it is of great interest to find out whether the socio-economic composition of young homeowners has changed over time. In other words, what can existing research tell us about home ownership and social inequality? In particular, how has this relationship changed over time? First of all, it must be recognised that home ownership differentials can be both a consequence and cause of social inequality. Masnick (2001: 1), who focuses on home ownership and racial inequality in the United States contends that "[d]ifferences in income, wealth, education, family structure, and racial identity all contribute to differences in home ownership, and differential home ownership opportunities help sustain differences in wealth, education, access to jobs, and overall quality in life." Accumulated home equity can serve as a buffer against financial difficulties caused by events such as divorce or temporary unemployment. Masnick (2001) fears that increasing home ownership differentials will sustain social inequality between blacks and whites. Dawkins (2005) study also deals with racial gaps in home ownership in the United States. Taking explicit account of observable location characteristics (e.g. neighbourhood housing values, neighbourhood owner-occupied unit concentration), Dawkins

[6] Halket & Vasudev (2009) calibrate a model with price volatility, mobility and home ownership to determine the effect of borrowing constraints, household illiquidity and price risk on rent vs. home ownership decisions over the life cycle. They find that "while some young households rent due to borrowing constraints in the mortgage market, the profile of earnings and desire for mobility are more important determinants of the ownership rate."

(2005: 551) concludes that "eliminating racial differences in demographic and labor market characteristics would eliminate most of the racial gap in homeownership". The author finds that one of the most effective policy strategies would be those aimed at reducing racial gaps in household income.[7] The finding that household income is a key determinant of ability to achieve home ownership is also found in a comparative study of entry into home ownership in Germany and the United States by Clark, Deurloo & Dieleman (1997). Tax benefits in Germany have nevertheless enabled families with relatively low incomes to enter ownership. There are also interesting age differences highlighted in the study. "[I]n the German context, couples and families start entering home-ownership at a later age and are still entering the home-ownership market in significant numbers in the 35-44 age group. In the US, over three-quarters of couples and families who make that move have already completed it before they reach 35 years of age" (Clark, Deurloo & Dieleman 1997: 13-14).

Turning to European findings, the evidence is mixed. Cabré & Módenes (2004) do not find a strong correlation between social status and home ownership in Spain. Measured at the end of the family life cycle, couples with relatively few financial resources were almost as likely to own their home as more well-off couples. But they find evidence that social status affects the timing of ownership: the transition to ownership took place quicker for middle- and upper-class couples when compared with lower-class couples. For Italy, by contrast, Bernardi and Poggio (2004) find strong indications that class differences in home ownership exist. Blue collar and agricultural workers are least likely to become homeowners. Moreover, inequality in home ownership has become more acute for younger cohorts.

In the Netherlands, homeowners have become a more diverse group, according to Smits & Mulder (2008). In particular, home ownership has become more likely among singles, cohabiters and newly started cohabiters over the period 1994-2003. Smits & Mulder (2008) provide several possible explanations for home ownership in the Netherlands becoming 'less exclusive': incomes have generally increased, mortgage policies may have made home purchase easier for these groups, being single and cohabiting have become socially more acceptable, young adults are single for longer and may therefore not necessarily wait for a partner before investing in a home. Interestingly, Smits & Mulder (2008) found that during years of economic downturn, families with children were less likely to become homeowners. The authors suggest that these families tend to become more cautious in such periods. In their study of Australia, Baxter & McDonald (2004) find a similar result in that having children postpones transitions to ownership, and the more children, the longer the delay. A point of difference between the Australian and Dutch results is that in the former case formal marriage is found to be the key variable determining entry into first-home purchase. This stands in contrast to the Dutch results, where formal marriage is no longer a prerequisite for home ownership.

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[7] Gabriel & Rosenthal (2005) also find that changes in socio-demographic characteristics account for the bulk of the racial gaps in home ownership. They conclude that although innovative mortgage finance and low interest rates may benefit prospective homeowners, they are not the primary drivers of changes in home ownership rates.

Yates (1999) has argued that increased income inequality may cause lower home ownership rates among low-income groups. Renting a home may well be a more safe choice for low-income groups for several reasons. People with low skills are more at risk of losing their jobs, making future income streams more uncertain. Also, government rent assistance/rent control and supply of public housing will also affect tenure choices among the lowest income groups. That there are strong consequences of government rental policy on housing (and labour) market choices was made very clear by Svarer, Rosholm & Munch (2005).

Our contribution to the literature is to provide an updated analysis of trends in young home ownership in Denmark in which we complement a comparative static trend analysis with a life course approach. A comparative static analysis may reveal declining shares of homeowners among young adults, but since the average characteristics of e.g. 25-30-year-olds in 2005 are very different from the average characteristics of 25-30-year-olds in 1985, we cannot say whether this decline represents a permanent decline in home ownership opportunities for younger cohorts or whether this decline rather represents a deferral of home ownership to older ages reflecting deferral of other key life-cycle events that are known to be related to home ownership (e.g. labour-market entrance, marriage, children). In other words, in our analysis we take explicit account of individual socio-economic histories as an integrated part of analysing the probability and timing of first-time home ownership among young adults. We are particularly interested in whether home ownership has become more or less affordable for young adults and so we investigate whether the role of income has changed as a predictor of home ownership over time. These complementary approaches allow us to provide a more nuanced answer to the question posed in the title, namely whether the observed decline in home ownership among young Danish adults merely reflects postponement or whether affordability has become an increasing problem.

3 The Danish housing market

The structure of the housing market and housing policy in Denmark

While Denmark is known for its flexible labour market ("the flexicurity model"), the housing market is characterised by substantial direct and indirect subsidisation as well as regulation of all four main types of housing: owner-occupied housing, cooperative housing, social housing and private rental housing. See Box 1 below and table 3 in OECD (2006) for an overview.

Right- and left-wing political parties disagree about which role the state should play in the housing market. "Right-wing parties generally support private property rights and the market economy: they want to encourage private ownership and rentals, and they want the price of housing to be determined by the market. The left wing of the political spectrum – including the Social Democratic Party – believes that public housing is an important alternative to private ownership and rentals" (Leth-Sørensen 2004: 143). Notwithstanding these differences, the overall objective of Danish housing policy has been to ensure that citizens have access to appropriate housing at affordable and relatively predictable prices through the variety of housing segments.

Danish housing policy was managed by the Ministry of Cities and Housing until the year 2001, where the newly elected liberal democratic government chose to close it down. Since then housing policy tasks have been taken care of by the Ministry of Economic and Business Affairs and the Ministry of Social Affairs. The closing down of the ministry does not, however, mean that changes in housing policy have been absent since 2001. Gomez Nielsen (forthcoming) analyses housing policy in Denmark during the period 2001-2009 and she finds that significant changes have taken place. Not through major reforms, but rather through subtle changes in the administration of various more or less technical policy instruments. Gomez Nielsen (forthcoming) finds that these less transparent changes have in fact had substantial effects on e.g. the roles of the state and the municipalities in terms of how much new social housing has been constructed and the increased market determination of cooperative housing prices. Notably, the liberal democratic government stated in 2002 that citizens should have a real choice between owning and renting (Ministry of Economic and Business Affairs (2002).

The OECD (2006) argues that the Danish housing market is overregulated and puts significant strains on public budgets. They argue that introducing more market-based mechanisms could help achieve policy objectives in a more efficient and targeted manner. Danish homeowners – who are the focus of this paper – benefit from indirect tax subsidisation. The real estate tax (*ejendomsværdiskat*), for example, is officially set at 1% (and 3% above a certain threshold), but the average effective rate paid in 2006 was just 0.55% of the assessment value according to the OECD (2006). This difference is due to reductions provided for dwellings purchased before July 1998, special reductions for pensioners and a nominal tax freeze imposed in 2002. In the light of the substantial price increases in the years up until 2007, this resulted in a *de facto* reduction in housing taxation. Moreover, if the real estate tax were

to be neutral vis-à-vis other types of capital taxation, it should be considerably higher than 1%, according to the OECD (2006). The magnitude of the indirect tax subsidy has diminished substantially over the past decades. Low interest rates have led to lower tax values of interest deductibility. According to the Ministry of Taxation (2006), the interest tax subsidy enjoyed by owners amounted to almost 10% of the average house value in 1980, but less than 1% in 2005. The Welfare Commission (2006) has recommended phasing in an increase in the real estate tax over a period of 10 years, estimating that this would reduce house prices by around 10%, corresponding to around half the price increase experience in the year 2005.

Box 1: The Danish housing stock

The Danish housing stock consists of four main segments:

(1) *Owned housing*: consists of single-family houses, multi-family houses and owner-occupied apartments. This segment accounted for 64% of dwellings in 2009. Note that the definition used by Statistics Denmark (2010) is based on the ownership status of the housing unit and does not take account of its rental status. I.e. the share of *people or households* living *as owners in their owned housing unit* is less than 64% because some owned housing units may be sublet to others and some owned housing units may not be in use at all.

(2) *Cooperative housing*: an alternative to conventional ownership – typically an apartment – with a relatively low "entry fee" and low rent paid to the owner society, which is responsible for exterior maintenance. Price formation in this segment has become more market-driven in recent years. This segment accounted for 7% of dwellings in 2009.

(3) *Social housing*: supplied by non-profit housing associations to provide rental housing for their members. Including public dwellings, this segment accounted for 21% of dwellings in 2009.

(4) *Private rental housing and other dwellings not stated*: Primarily private rental dwellings provided by landlords on a for-profit basis. This segment accounted for the remaining 8% of dwellings in 2009. C.f. the comment in bullet (1) above, the share of people or households renting a dwelling is higher than 8%, because some people or households rent a housing unit which is owned by someone else for shorter or longer lengths of time.

Source: Statistics Denmark (2010) and Leth-Sørensen (2004). See also Skak (2006).

The mortgage market

The Danish mortgage market is well developed and builds on the underlying idea of safeguarding investors' interests through investments based on a pool of mortgages rather than on individual mortgages. Danish mortgage bonds (*realkreditobligationer*) are supported by a strong legal framework and are under close supervision by the Danish Financial Supervisory Authority. This ensures a relatively low risk for investors (Pannell 2003, see also Box 9 in OECD 2006). Besides traditional long term fixed rate mortgage, a wide variety of new products have been introduced in the past two decades including variable rate loans, adjustable rate loans, capped rate loans, interest reset loans, interest only loans and equity release loans. Fixed rate loans still account for a sizeable part of the market, but their share has declined steadily over the years. The Danish system enables borrowers to refinance their mortgages, which has resulted in substantial amounts of refinancing activity as interest rates have changed. On the one hand, this product innovation has allowed "households to adapt the risk and repayment profile to their specific situation" (OECD 2006: 51). On the other hand, the increased share of adjustable and variable interest mortgages also makes Danish homeowners more vulnerable to future increases in interest rates since short rates are more volatile

than long rates. Interest rates have been exceptionally low for a long period of time and increasing rates may hit some households harder than others – probably the young and less consolidated households in particular. How potential and existing homeowners manage through the current period of declining house prices and general economic downturn will contribute to an overall assessment of the value of these mortgage innovations.

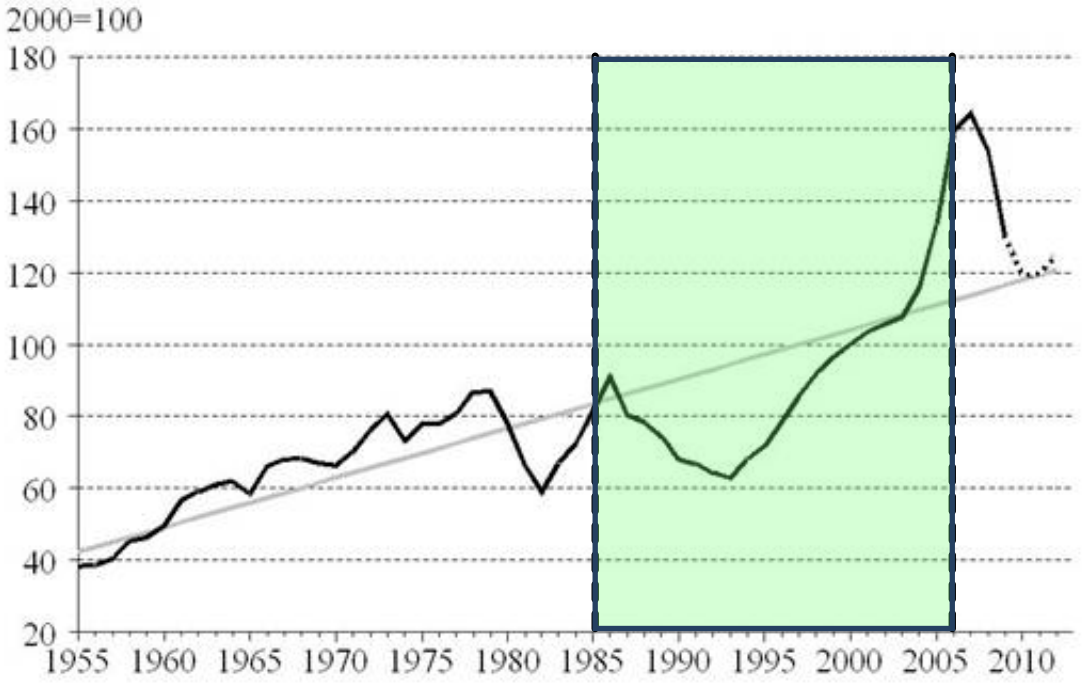
One of the consequences of the Danish welfare model is that the family plays only a minor role in terms of supporting its members financially (Leth-Sørensen 2004). This is also true when it comes to first-time home purchases. Kolodziejczyk (2008) finds that Danish parents rarely provide financial support when their grown-up children buy an apartment or a house for the first time. This is true irrespective of how wealthy the parents are. Curiously, however, young first-time buyers seem more willing to buy more expensive real property, the higher their parents' level of wealth. Kolodziejczyk (2008) concludes that in Denmark wealthy parents play the role of guarantor rather than providing direct financial assistance when it comes to young people's first-time home purchase.

House price developments

As mentioned in the introduction, house prices in Denmark increased rather dramatically up until the financial crises broke out in 2007-2008. As figure 3.1 clearly shows, the increases in real house prices were most steep in the period after 2002, where e.g. a nominal tax freeze was imposed resulting in a *de facto* reduction in housing taxation. The figure also shows that house prices had indeed been rising since 1993, a year which marked the turn-around of the housing price cycle accompanied in the years 1994 and 1995 by reforms in the following areas: the labour market as well as tax and credit policies.

The data for the present study cover the period 1985-2006 (the shaded part of figure 3.1), thereby including a period of declining real house prices (up until 1993), a period of rising prices (from around 1994 to 2003) and a period with sharply rising house prices (2004 to 2006). Clearly, being a young adult and potentially also a first-time home purchaser in these three very different periods provide very different opportunities. Declining prices lower the entry barrier while increasing prices raise the entry barrier. In any case, entry presupposes that the person can obtain credit to finance the purchase. Credit opportunities depend on current income and savings as well as future earnings potential. These factors will in turn be dependent on e.g. the person's level of education and labour-market status. As will be discussed below, our empirical analysis will take account of such individual socio-economic characteristics.

Figure 3.1 Real house price developments, 1955-2010



Source: The housing market and the crisis (in Danish: Boligmarkedet og krisen), Danish Economic Councils (http://www.dors.dk/sw7100.asp#).

Note: The black curve shows the average price of houses deflated by the general consumer price index, while the grey line depicts the trend. The data for 2009-2012 (the dashed part of the black curve) are the Danish Economic Councils' prognosis.

4 Data and descriptive statistics

This study uses a longitudinal data set established from administrative registers made available for research purposes from Statistics Denmark. The data set combines individual level data for the entire working-age[8] Danish population with housing data for the period 1985-2006. Key variables in the data set include age, sex, type of housing, ownership registration linked to a specific property, disposable income, level of education, labour-market status, civil status, number and age of children and place of residence. Our approach is to focus on young men aged 18-39 as the individuals of interest, whilst adding information about possible partners as an additional description of an individual man's characteristics. We have decided to focus on men because – like e.g. Myers, Megboulughe & Lee (1998) – we want to avoid assigning household headship to either men or women. More importantly, however, adopting a per capita approach to home ownership allows us to take explicit account of the variation in household formation over time and across age cohorts.[9]

The housing data we have access to through Statistics Denmark include a database covering all dwellings in the country including a registration of the legal owners. Not all people living in owner-occupied homes are registered as the legal owners themselves. A man can, however, be financially secured through formal marriage if his wife is the legal owner of the home (or through formal partnership in the case of two men). According to Danish law real property is shared equally between the spouses if the couple divorces. In the present analysis we therefore define homeowners to include (a) men who are formally registered as the owner of a house or an apartment and (b) men who are not registered as owners of the property they live in, but who are married (or in a registered partnership) to a woman (registered partner) who is registered as the legal owner of the property. Around 6-7% of the male working-age population lives in an owner-occupied dwelling without being financially secured according to this definition.[10] This could be individuals who rent part of an owner-occupied house or apartment, but where the house or apartment is not formally split up into separate dwellings. Our definition will not capture couples who have secured themselves through other legal ar-

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8 In this paper, the age group 18-59 is referred to as the 'working-age population' since in Denmark it has been increasingly common for elderly people to leave the labour market at the age of 60, i.e. up to five years before the official retirement age.

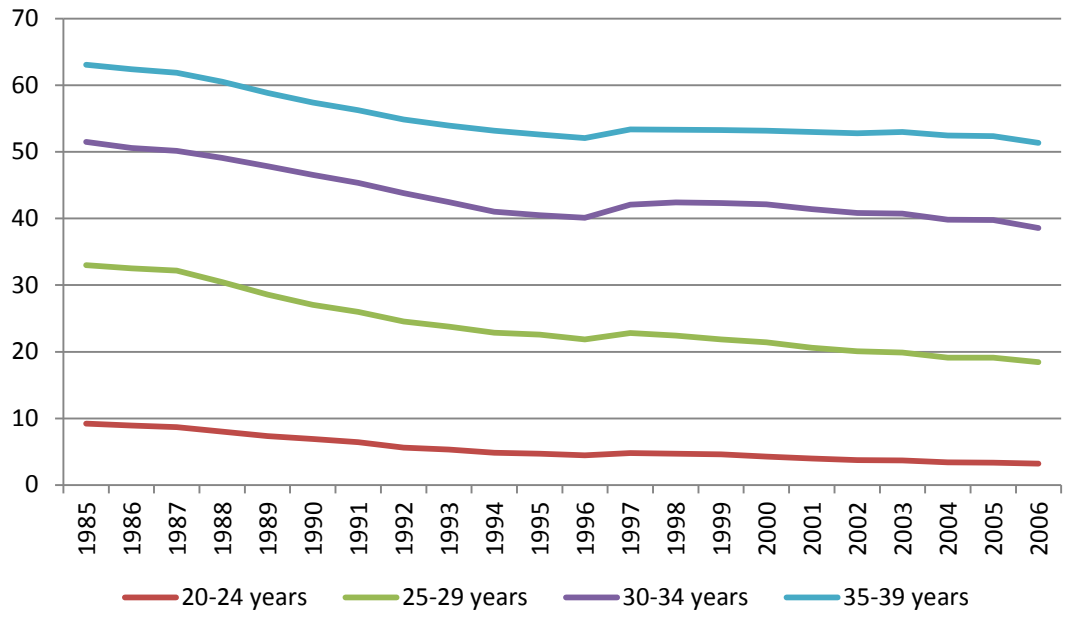
9 Carter (2007) also separates married couple's income components to see if one income has more effect on the tenure choice than the other. He controls for the second income being potentially endogenous so as to avoid biased estimates. Carter's underlying argument for investigating endogeneity of the household's second income is the following: "With these increases in house prices over a short period of time, households may be constrained by a fixed income, such that affordability can only come if a non-working member of the household enters the work force." In the case of Denmark, the labour-market participation rate among women is almost identical to that of men. Therefore, the concern about endogeneity of the wife/female partner's income is not as relevant as in the US case.

10 Focusing on young adults under the age of 40, we find that this form of housing is most common among the 25-29-year-olds (10-12%) and least common among the 18-19-year-olds (3-6%). For the 20-24-year-olds, the share has declined from 11% in 1985 to 7% in 2006. For the 30-34-year-olds and the 35-39-year-olds, the shares have changed very little over time. The period average is around 8% for the first group and around 6% for the second group.

rangements than formal marriage/partnership registration, nor will it be able to exclude those who are married, but where the couple has agreed to separate claims on real property in case of divorce. Nonetheless, we judge that our definition captures the vast majority of financially secure owners. Moreover, when comparing real disposable income of these two subgroups, we find that they have very similar income profiles both in terms of levels and changes over time. This supports our decision to treat these individuals as one group in our empirical analysis.

Figure 4.1 shows that the shares of homeowners among Danish men have decreased for all the young age groups. The share of homeowners among the 25-29-year-olds has declined substantially from 33.0% in 1985 to 18.4% in 2006. The declines are less dramatic for the older age groups, 30-34 and 35-39, but still substantial. For the 35-39-year-olds, for example, the home ownership rate has declined from almost 63% in 1985 to 51% in 2006. The rates of decline are greatest during the first half of the period. After the mid-1990s there are slight increases (for all age groups except for the youngest) followed by somewhat slower rates of decline until the end of the observation period.

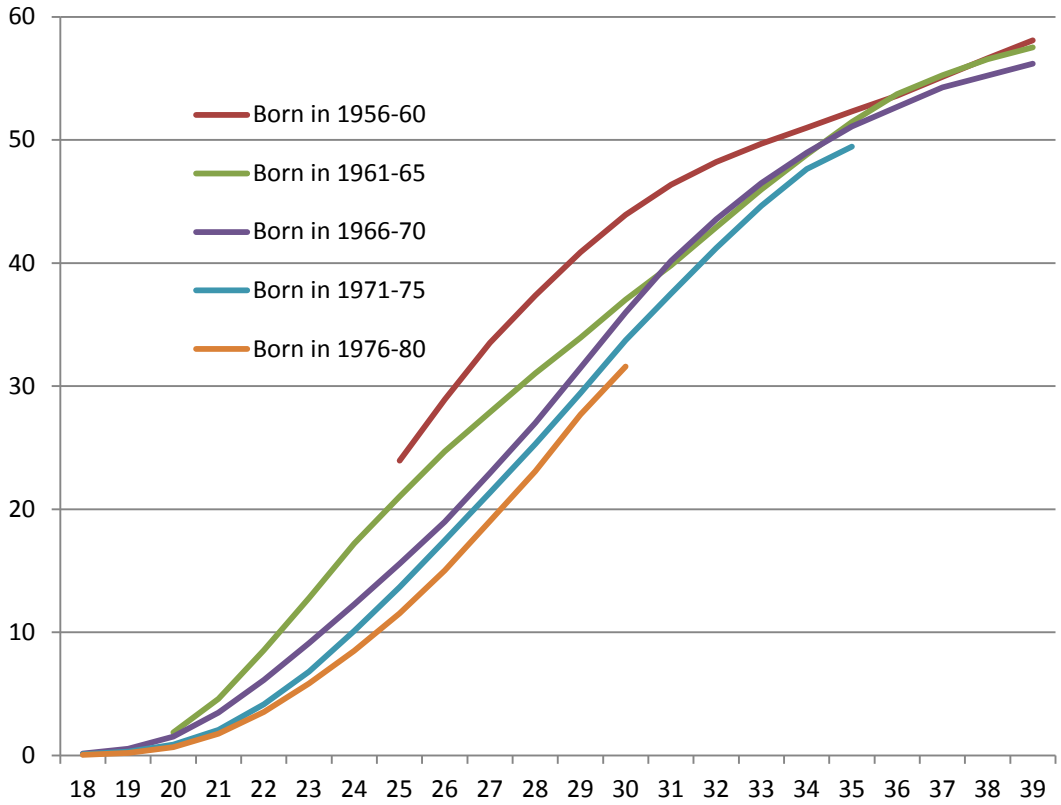
Figure 4.1 Share of homeowners among Danish men by age group, 1985-2006



Being comparative static in nature, figure 4.1 is just a snapshot of the shares of homeowners at different points in time. The curves do not represent actual lifetime experiences. The average histories of education, work opportunities, norms for relationship formation and childbearing, macroeconomic and housing market conditions etc. are very different for individuals born in e.g. 1956-60 (aged 25-29 in 1985) compared with individuals born in e.g. 1976-80 (aged 25-29 in 2005). We therefore take a cohort perspective in figure 4.2 by following selected birth cohorts from they turn 18 and until they reach the age of 39. This alternative perspective reveals interesting changes in the timing of home ownership. First of all, it is

clear that younger birth cohorts do not make the transition to home ownership as quickly as older birth cohorts. At the age of 25, one in five of the oldest cohort (born in 1956-60) had already become a homeowner, whereas this was the case for just one in ten of the youngest cohort (born in 1976-80). Let us compare the oldest cohort (born in 1956-60) with the next-youngest cohort (born in 1971-75), which we can follow at ages 25, 30 and 35. At ages 25 and 30, there was a circa 12 percentage point difference in the share of homeowners, but at the age of 35, this gap had shrunk to just 2.8 percentage points. The same pattern of change is true when comparing the other cohorts. In other words, there seems to be indications of catching up in the sense that by their mid-30s, the younger age cohorts do seem to achieve home ownership to almost the same extent as previous cohorts. By the age of 39, the three cohorts of individuals born in 1956-60, 1961-65 and 1966-70, all reach basically the same rate of home ownership (i.e. 56-58%). For the cohort born in 1971-75, we can conclude that by the age of 35, their rate of home ownership is very close to that obtained by previous cohorts at the same age. The descriptive data do not, however, allow us to draw strong conclusions about the cohort born in 1976-1980 since we cannot follow them beyond the age of 30. What we can say is that the share of home ownership for this cohort lies consistently below previous cohorts, but that the stretch to the previous cohort (born in 1971-75) is not far. At the age of 20, 31.6% of the individuals born in 1976-80 were homeowners compared with 33.7% of the cohort born in 1971-85, i.e. a difference of 2.1 percentage points.

Figure 4.2 Proportion of homeowners among men by 25-29-year-old cohorts



Summing up, the descriptive data reveal that there are fewer homeowners among the younger age groups. The relative declines over time have been largest for the 25-29 year olds and strongest in the first half of our observation period. In the mid-1990s, the share of homeowners *above the age of 30* increased slightly, where after the decline continued, but at a much slower pace than during the period 1985-1996. The share of homeowners in the age groups *under the age of 30* also continues to decline after the mid-1990s, but again at a slower pace than before. Taking a cohort perspective shows clearly that the timing of entry into home ownership has changed. Home ownership is being delayed, but there is also evidence that younger cohorts had almost caught up with the rates of older cohorts by their mid- to late-30s. The percentage point differences are very small. This conclusion holds for cohorts born in 1971-75 and earlier. For those born in 1976-80, there are fewer homeowners among them in early adulthood, but we cannot say whether they will catch up with earlier cohorts by their mid- or late-30s since we cannot follow them that far.

Inequality in income and home ownership

Home ownership generally requires a relatively high and particularly a stable income. A strong motivation for analysing changes in home ownership rates is the concern that increasing income inequality may result in an increasing share of the population never being able to afford to buy their own home. As mentioned earlier, Leth-Sørensen (2004) concluded that Danish society had become increasingly segregated during the period 1980-1993 with homeowners having more resources than renters. We have studied the relationship between real disposable equalised income and tenure[11] over time among young adults aged 18-39 since Leth-Sørensen's study ended in the mid-1990s and find that the average income difference between renters and owners has continued to increase.[12] Both income levels and housing options are closely related to which stage in the life cycle an individual is in and therefore it is necessary to take account of the age structure when assessing the relationship between in-

11 When comparing individual income levels across different types of tenure, it is important to take account of household composition effects: e.g. renters are typically younger than owners and owners are more often couple-families with children. Also, different households have different needs at the same level of total income. A natural choice is to use an equivalence scale to convert (nominal or real) incomes to comparable measures of well-being by taking account of household size and composition. Several alternative equivalence scales exist of which some of the most common are the OECD modified scale and the square root scale (Atkinson et al. 1995; OECD 2010). There is no accepted or recommended method – the choice depends on assumptions about economies of scale and value judgements regarding the needs of children and adults. According to Burniaux et al. (1998) the choice of equivalence scale will affect the level and composition of income poverty measured, whereas trends over time are much less affected. For this analysis we use the OECD modified equivalence scale. To test the sensitivity of the use of this scale, we also use the square root scale, which has been used in recent OECD publications, e.g. OECD (2008). The patterns are the same as those using the OECD modified scale and are available from the authors upon request.

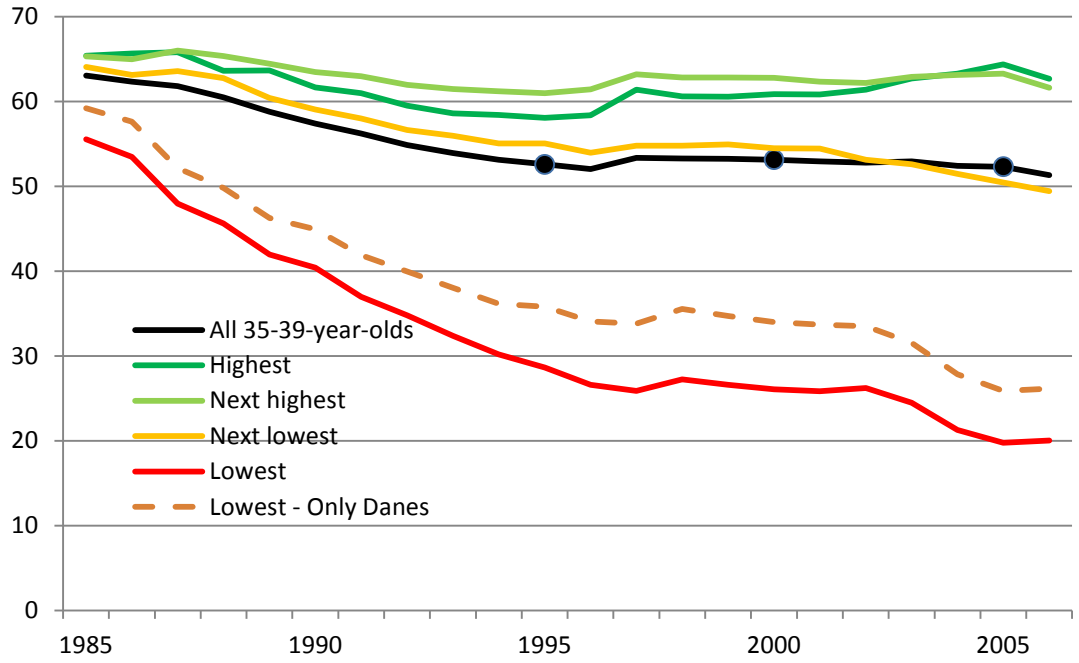
12 Note that the applied definition of disposable income includes imputed rent and deducts interest payments in order to correctly compare the economic situation of owners and tenants. Studies by e.g. Verbist & Lefebure (2008) for Belgium and Saunders & Siminski (2005) for Australia find that including imputed rental income in the definition of disposable income generally has an equalising distributional impact. Both studies find that disposable incomes at the bottom increase the most, whereas incomes at the top of the scale increase the least. As Verbist & Lefebure (2008: 25) explain, "[a]t old age, when income is lower, many households own their homes outright. At active age, when income is higher, large mortgage payments are putting a weight on disposable income." See also Frick & Grabka (2003).

come and home ownership rates. Clearly, the housing consequences of low income during early years of adulthood are different from the housing consequences of low income during later years of adulthood (Yates & Wulff 1999).

In figure 4.2 we saw that individuals born in the three cohorts 1956-60, 1961-1965 and 1966-70 all achieved similar shares of homeowners after having reached the age of 35-39 (in 1995, 2000 and 2005, respectively) despite different time paths up until this age. On average, individuals in the older cohorts became homeowners at an earlier age than did individuals in the younger cohorts. The fact that these cohorts achieved similar average shares of homeowners is depicted by the dots on the black line in figure 4.3, which shows the share of financially secure homeowners among the 35-39-year-old age group by income quartile. The black line shows the overall share of homeowners in this age category for each of the years 1985-2005, while the coloured lines are the shares for individuals depending on which income quartile they belong to in that particular year.

In 1985 almost 56% of those with incomes in the lowest income quartile owned their homes. In 2006 this share had declined to 20%. At the next lowest income level, the share of homeowners in 2006 was 49.4%. In other words, the gap between home ownership rates at the two lowest income quartiles has grown dramatically and has remained around 28 percentage points since 1997. This year also marks a moderate 'point of recovery' for home ownership rates among those in the highest two income quartiles resulting in a peak percentage point difference of almost 45 between home ownership rates in the highest and lowest income quartiles in 2005. A partial explanation for the strong decline in home ownership among the lowest income quartile can be found in the fact that the share of immigrants (1st and 2nd generation) in this age group has increased from 4.7% in 1985 to 10.8% in 2006. In particular, immigrants account for a larger share of the lowest income quartile: 8.2% in 1985 and 30.9% in 2006. Home ownership rates among immigrants – and particularly so among recent immigrants – tend to be substantially lower than for the native population. Reasons include lower average incomes, more unstable attachment to the labour market, a tendency to live in large cities where the supply of owner dwellings is often lower and prices are higher. As can be seen in figure 4.3, however, the share of homeowners in the lowest income quartile is still low and the decline over time has been much more dramatic than for the other income quartiles even when considering only ethnic Danes.

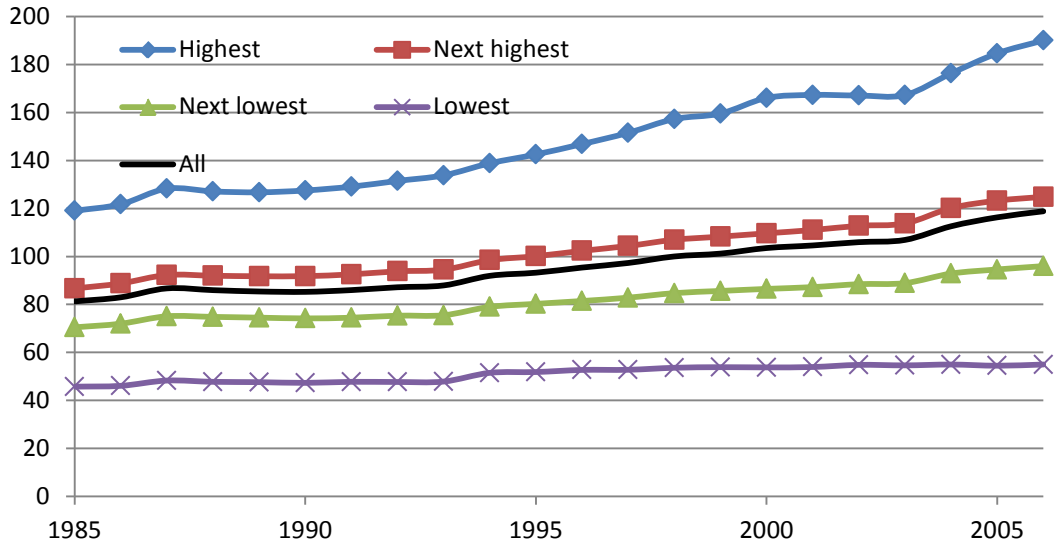
Figure 4.3 Share of homeowners among 35-39-year-olds by income quartile



Note: Income quartiles are calculated on the basis of the real disposable equalised incomes of the entire working-age (18-59) population in each year.

In the light of the increases in house prices in the period since the mid-1990s, c.f. figure 3.1, it may be surprising that the share of homeowners among young adults has not declined more than it has and has even remained stable among the 35-39-year-olds, c.f. figure 4.1. A contributing factor is of course the overall steadily increasing real incomes. Splitting the group by income quartiles, we find, however, that there are very large differences in the development of income levels over time. In particular, while the incomes of the lowest quartile have only grown modestly (from around DKK 46,000 in 1985 to DKK 55,000 in 2005, an increase of around 20%), incomes of the highest quartile has grown almost 60%, from DKK 119,000 to DKK 190,000 c.f. figure 4.4.

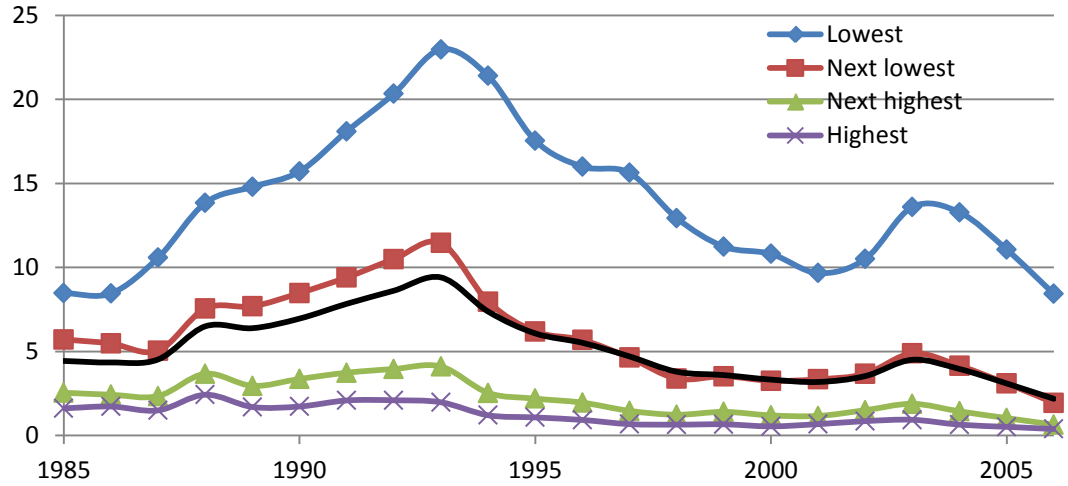
Figure 4.4 Real disposable equalised incomes among adults aged 35-39 by income quartile, 1985-2006 (in thousand DKK)



Note: Income quartiles are calculated on the basis of the real disposable equalised incomes of the entire working-age (18-59) population in each year.

The relationship between income and home ownership could also reflect underlying relations between certain socio-economic characteristics and home ownership. To illustrate, we look at how these income groups differ from one another in terms of labour-market attachment. Figure 4.5 shows the share of individuals belonging to a given income quartile whose primary labour-market status in a given year is unemployment. Comparing individuals across income quartiles shows that both the level and particularly the variation in the share of unemployed is greater among the lowest income quartiles compared with the higher income quartiles.

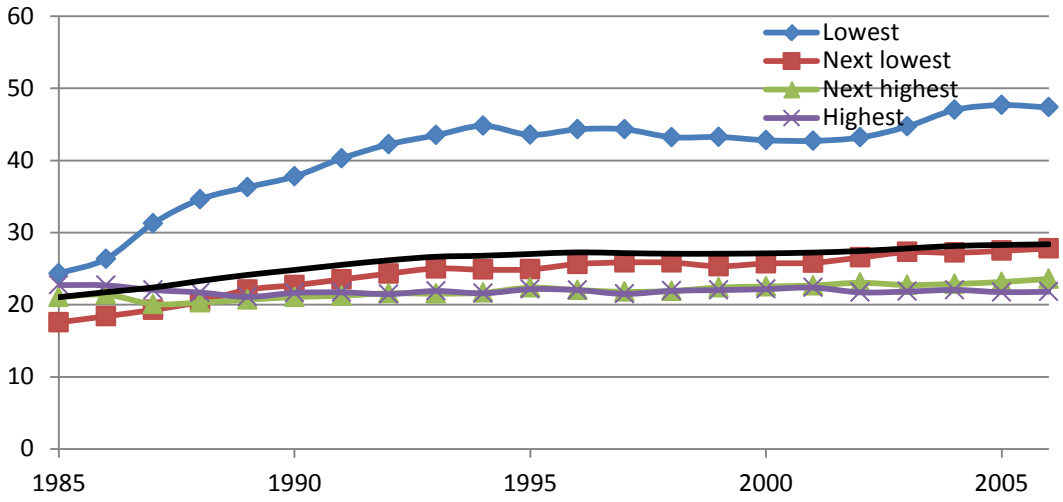
Figure 4.5 Share of unemployed among adults aged 35-39 by income quartile, 1985-2006



Another relationship underlying home ownership and income is the relation between income and level of education. There are indications in the data, however, that a lower level of education did not necessarily mean that you could not achieve a high income, but the relationship has become stronger over time. In fact, in 1985 18% of the 35-39-year-olds in the highest income quartile that year had no more than a primary education. By contrast, in 2006 only 8% of the 35-39-year-olds in the highest income quartile had no more than a primary education. Education has thus become more closely linked to income over time, so it may be that it is education that has become an increasingly more important factor for home ownership.

Marital status and family composition have also changed in different ways depending on income quartile. The share of 35-39-year-old men in the lowest income quartile who were married in 1985 was 69%. In 2006, this share has dropped to 43%, i.e. a decline of 26 percentage points. For the same age group of men in the highest income quartile in 1985 and 2006, the share has declined from 62% to 58%, i.e. a much less dramatic change of just 4 percentage points. These changes are mirrored in the changing share on singles without children, c.f. figure 4.6.

Figure 4.6 Share of singles without children aged 35-39 by income quartile, 1985-2006



Summarising our observations from the descriptive analysis so far, it is clear that where in the income distribution an individual finds himself has a lot to say in terms of the likelihood of being a homeowner. Moreover, the gap between home ownership shares among the richest and the poorest has increased over time. More specifically, the share of home owners among the lowest quartile individuals in their late-30s has decreased substantially. However, we have also seen that this particular group stands out by e.g. being much more vulnerable in terms of unemployment, their real disposable incomes have hardly changed during the period in question and there are many more singles without children among them in recent years compared with the start of our data period. All these observations indicate that some of the apparent increase in inequality in home ownership related to income inequality is due to changes in the composition and characteristics of the various income groups over time. To get a better grasp on these issues, we will now turn to a discrete time duration model analysis

to investigate how first-time home ownership among different income groups has changed over time once we have explicitly controlled for changes in their underlying characteristics. The results of the model estimations are presented in the next section, where we also calculate the predicted transition probabilities under various assumptions. These are then transformed into survival functions (time spent in non-home ownership) to illustrate the relationship between income inequality and home ownership inequality.

5 Duration analysis

The methodology used to analyse our data is duration analysis, since this allows us to investigate the impact of covariates on both the likelihood of entering first-time home ownership and of the timing hereof. As our data are available in years, we use a discrete-time duration model and have therefore arranged data in person-year form, c.f. Allison (1982). Let y_{it} be a binary variable which indicates whether individual i has become a homeowner in period t. The hazard function h_{it} describes the probability of entering home ownership in period t, provided that individual i has not yet purchased a home before t:

$$(1) \qquad h_{it} = \Pr(y_{it} = 1 \mid y_{i,t-1} = 0),$$

Durations not completed at the end of the sample period are treated as right censored. Individuals who leave the sample due to out-migration or death are treated as right censored.

The hazard is specified as a logit regression model:

$$(2) \qquad \log\left(\frac{h_{it}}{1-h_{it}}\right) = \alpha_t + X_{it}\pi$$

where α_t are year dummies for years elapsed since each individual turned 20 years old.[13] This is the most flexible treatment of the baseline hazard function. We exclude individuals who are homeowners already at the age of 20. Furthermore, we exclude individuals who are not present in the sample for an unbroken period of time and also individuals who are not present in the sample at their age of 20 but enter into the sample at older ages (mainly immigrants). Just like in the descriptive analysis, we focus on males but include spouse characteristics as explanatory covariates in case the male in question has a spouse.

X_{it} are the covariates used to explain first-time home ownership. They can either be constant or time-varying. The main explanatory variables of interest in our analysis are indicator variables for income quartiles, birth cohorts (1966-1970, 1971-1975, 1976-1980, 1981-1986) and calendar time periods categorised according to house price developments (1985-1993; 1994-2003; 2004-2006). In addition to these, we include a large number of control variables which can be thought of as falling into three categories. The first group consist of factors that relate to the individual in question: employment status, level of education, completion of education that year, currently taking an education, net assets, mother's level of education, mother's home ownership status and immigrant status. The second group of controls relates to a possible partner. If the person lives with a partner, we include information about the duration of the partnership, whether the couple is newlywed, if the partner is older than the male in question and other information about the partner such as employment status, level of education, currently enrolled in education, recently graduated and immigrant background.

[13] We follow the stock-sampling approach of Jenkins (1995) which means that time periods before selection into the sample can be ignored.

The control variables in the third group relate to the household more generally and include the number and age of any children, whether the current home is cooperatively owned, the regional location of the current home, and the level and annual change in the real prices of the 25% cheapest properties in the current municipality of residence.[14] All the time-varying explanatory variables are lagged by one.

In order to investigate whether the apparent increase in income-related inequality in home ownership over time also holds when controlling for compositional changes in socio-economic characteristics, we estimate two models that share the same base set of control variables listed above. Both models also include three indicator variables for income quartile with the highest income quartile as the reference category. The difference between the two models is that *the first model* investigates the changes in the impact of income quartile on the probability of home ownership *across birth cohorts*, while *the second model* looks at the changes in the impact of income quartile on the probability of home ownership *across calendar time periods*. In both cases these different ways of looking at changes over time (i.e. across birth cohorts or across calendar time periods) are interacted with the income quartile indicator variables to investigate the hypothesis of changing affordability for different income groups. A third and final model is then estimated which includes both time perspectives and adds to this interactions between employment and income quartile. This is done to illustrate the importance of labour-market attachment after having controlled for all the other covariates and changes herein.

Results

The key results from the estimation of the first model where focus is on the *birth cohort perspective* are presented in table 5.1. The full results reported in terms of coefficient estimates are in the appendix table A1. For ease of exposition, the results in table 5.1 are presented as odds ratios, with estimates > 1 implying a positive impact and estimates < 1 implying a negative impact.

As mentioned earlier, we have chosen to illustrate the issue of inequality in home ownership by considering the different opportunities that individuals at different levels in the income distribution have in terms of purchasing their own home – and how these differences have changed over time. Table 5.1 shows that the odds of a man from the baseline cohort (1966-70) in the lowest income quartile purchasing a home is less than 1/3 of the odds of a man in the baseline cohort who is in the highest income quartile. The interactions indicate that the odds of home ownership for the lowest income quartile have decreased over time in the sense that older cohorts were more likely to become homeowners than younger cohorts – despite their low income.

[14] These variables are meant to capture local house price levels and trends in the part of the housing market most readily accessible for first-time purchases, i.e. the cheapest. We do not know, of course, where specifically a potential first-time buyer is looking for a new home, but this variable is a proxy.

Table 5.1 Logistic regression of the transition to first-time home ownership, focusing on changes in affordability across birth cohorts, odds ratios

Variable	Odds ratio
Quartile 1	0.315***
Quartile 2	0.622***
Quartile 3	0.832***
Quartile 4	Reference
Quartile 1 * Born 1971-1975	0.973
Quartile 1 * Born 1976-1980	0.769***
Quartile 1 * Born 1981-1986	0.397***
Quartile 2 * Born 1971-1975	1.109*
Quartile 2 * Born 1976-1980	0.945
Quartile 2 * Born 1981-1986	0.660**
Quartile 3 * Born 1971-1975	1.063
Quartile 3 * Born 1976-1980	1.030
Quartile 3 * Born 1981-1986	0.802
Quartile *x* * Born 1966-1970	Reference
--- See appendix table A1 for all other covariates ---	

Significance: * p < 0.05; ** p < 0.01; *** p < 0.001.

Note: Full results reported in terms of coefficient estimates are shown in the appendix table A1.

Since the logit model is non-linear, however, we cannot be certain that the signs of the interaction effects correspond to the signs of the marginal interaction effects (i.e. how the marginal effect of income changes across cohorts) on the probability of house ownership (c.f. Ai & Norton 2003). We therefore calculate the predicted probabilities of survival for each individual assuming that he is in quartile 1 and quartile 4 and from different cohorts, respectively, whilst holding the values of all other covariates fixed. Our model thus predicts the survivor functions for quartile 4 individuals in each of the birth cohorts under consideration as shown in figure 5.1. The graphs show the share of individuals who have not yet left the state of not being a homeowner. Our model predicts that even after having controlled for all other individual socio-economic characteristics, younger cohorts of quartile 4 individuals have to at larger extent than older cohorts become homeowners. Moreover, they have purchased their homes at earlier ages than older cohorts. In other words, the results of our model predictions suggest that it has become easier for men in the highest income quartile to purchase a home over time – also after having taken account of changes in individual socio-economic characteristics.

Turning to figure 5.2 we see that the differences in the predicted survivor functions across birth cohorts are quite limited, though, thereby suggesting that the explanatory varia-

ble we have included in our model to a large extent captures the changes in home ownership opportunities among the lowest income group over time. In other words, changes in the socio-economic characteristics included in our model explain most of the dramatic decline observed in home ownership shares among the lowest income group we saw in the descriptive statistics. The model predicts that younger cohorts of quartile 1 individuals have to a slightly lesser extent become homeowners compared with older cohorts of quartile 1 individuals after having controlled for other socio-economic characteristics. Figure 5.3 shows the difference between the survivor functions of the two income quartiles (i.e. the highest and the lowest) and makes it very clear that for all birth cohorts, there are income-related differences in home ownership opportunities, and that the gap is greatest for the youngest birth cohort.

Summing up, our model predictions confirm that even after taking account of changes in socio-economic background characteristics, the gap between the richest and poorest in terms of their home purchase behaviour has increased over time. The estimates therefore produce the same message as observed in figure 4.3. This result, however, is driven primarily by positive changes for the richest quartile and to a lesser extent by negative changes for the poorest quartile when considering changes in each of their different background characteristics. In other words, changes in socio-economic background seem to explain most of the decline in home ownership among the poorest quartile, but not the entire increase in home ownership among the rich. Other possible explanations for the increasing level of home ownership among the rich may be stronger preferences for this type of housing or easier access to financing opportunities (that are not captured by the covariates we already have included in the model).

Figure 5.1 Predicted survivor function for highest income quartile by birth cohort

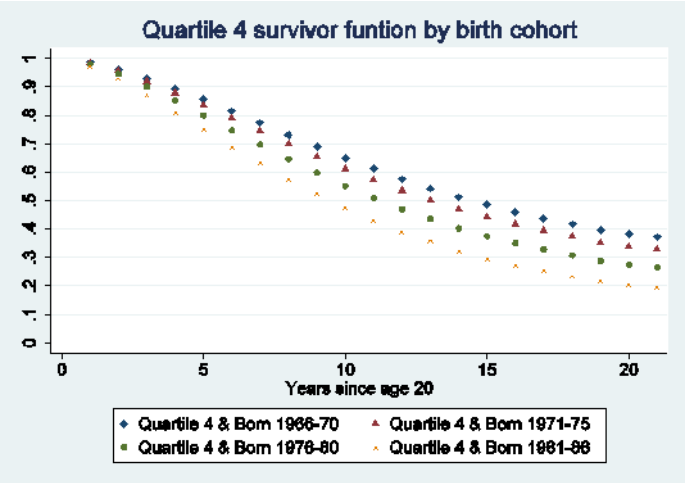


Figure 5.2 Predicted survivor function for lowest income quartile by birth cohort

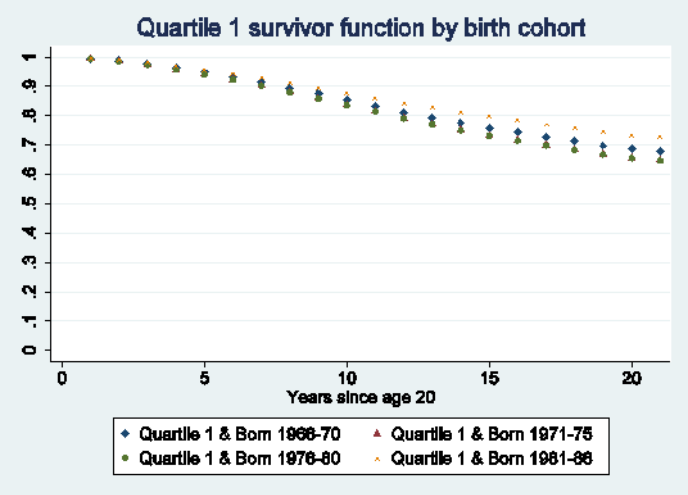
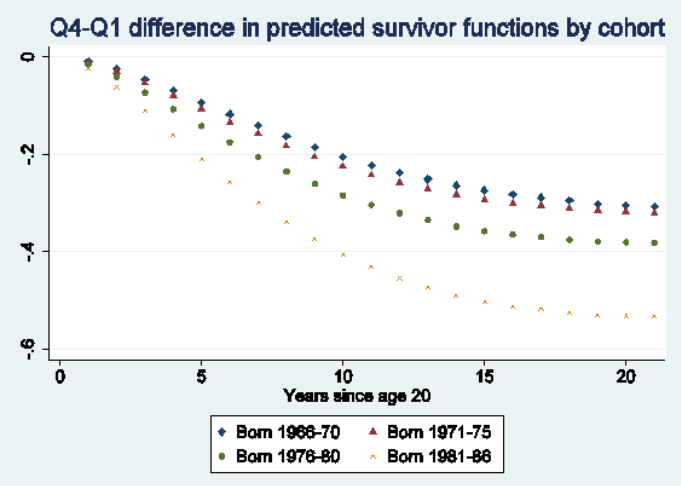


Figure 5.3 Difference in predicted survivor function between highest and lowest income quartiles by birth cohort



We now turn to the results from the estimation of the second model where focus is on the *calendar time period*, which is essentially capturing differences in the *housing price situation*. The key results are presented in table 5.2. The full results of all covariates reported in terms of coefficient estimates are in the appendix table A2. As before, the results in table 5.2 are presented as odds ratios. Recall that our reference housing price situation is the period 1994-2005, i.e. one in which prices were increasing, although not as dramatically as in the years just before the housing market bubble burst, c.f. figure 3.1. Before looking at the results in table 5.2, note that the main effects of both the period with declining prices and the sharply increasing prices are positive, c.f. the appendix table A2.

The results in table 5.2 indicate that compared with quartile 4 individuals in the reference period of increasing prices, quartile 1 individuals are less likely to become home owners in both periods with decreasing prices as well as in periods with sharply increasing prices. This finding may seem surprising at a first glance, but it should be recalled that the period with declining house prices was one of low economic growth and high unemployment. Therefore, one interpretation of the results is that this situation had led to a wait-and-see approach to first time home purchase among those with low incomes. In the period with sharply increasing house prices, on the other hand, the very high level of real prices most surely became an insurmountable entry barrier for those with low incomes, who therefore did not have the opportunity to take part in the real property investment boom.

Table 5.2 Logistic regression of the transition to first-time home ownership, focusing on changes in affordability in different housing price situations, odds ratios

Variable	Odds ratio
Quartile 1	0.421***
Quartile 2	0.869***
Quartile 3	1.014***
Quartile 4	Reference
Quartile 1 * Declining prices 1985-1993	0.301***
Quartile 1 * Strongly rising prices 2004-2006	0.425***
Quartile 2 * Declining prices 1985-1993	0.405***
Quartile 2 * Strongly rising prices 2004-2006	0.518***
Quartile 3 * Declining prices 1985-1993	0.659***
Quartile 3 * Strongly rising prices 2004-2006	0.692***
Quartile *x* * Rising prices 1994-2003	Reference
--- See appendix table A2 for all other covariates ---	

Significance: * p < 0.05; ** p < 0.01; *** p < 0.001.

Note: Full results reported in terms of coefficient estimates are shown in the appendix table A2.

Once again we calculate the predicted probabilities of survival for each individual assuming that he is in quartile 1 and quartile 4 and for given time period, respectively, whilst holding the values of all other covariates fixed. We use the second model to predict the survivor functions for quartile 4 individuals in each of the price periods under consideration as shown in figure 5.4. Having controlled for socio-economic characteristics, we find that individuals in the richest income quartile enter the homeowner market most rapidly during the period with strongly increasing real property prices and least rapidly during the reference period with "normally" increasing prices. These results suggest that individuals with high incomes can and do react strongly to the actual situation in the housing market. In times of strongly increasing prices those with high incomes tend to move real property investments forward. Individuals with high incomes are also able to expedite their investments in times of declining real property prices because they are – compared to low income individuals – less at risk of unemployment.

Figure 5.5 shows the predicted survivor function for individuals in the lowest income quartile across different property price periods. Transitions to first time home ownership for this group are slowest in periods of declining prices. This result may appear surprising at a first glance, but the finding that this is true even after having controlled for individual level unemployment suggests that the overall investment climate for low income individuals in such periods is worse than in other periods. This is probably due to general job uncertainty and may therefore lead to a wait-and-see approach to first time home purchase. Figure 5.6 depicts the differences in the two survivor functions making it clear that the greatest differences between the richest and poorest income quartiles – when having controlled for socio-economic background – are during periods of either declining real property prices or during periods of sharply increasing real property prices. The most plausible explanation is that in both cases, the highest income groups have an advantage above and beyond individual characteristics such as current employment status. Individuals in the highest income quartile most probably exert different investment and risk-taking behaviour both in times of economic recession and in times of economic expansion because they are better educated and are therefore expected to have a more stable labour-market attachment. These characteristics will also determine which financing opportunities that are made available to them. By contrast, individuals in the lowest income quartile are less educated, at greater risk of unemployment and will therefore also face greater difficulties in terms of obtaining financing for a possible home purchase.

Figure 5.4 Predicted survivor function for highest income quartile by price period

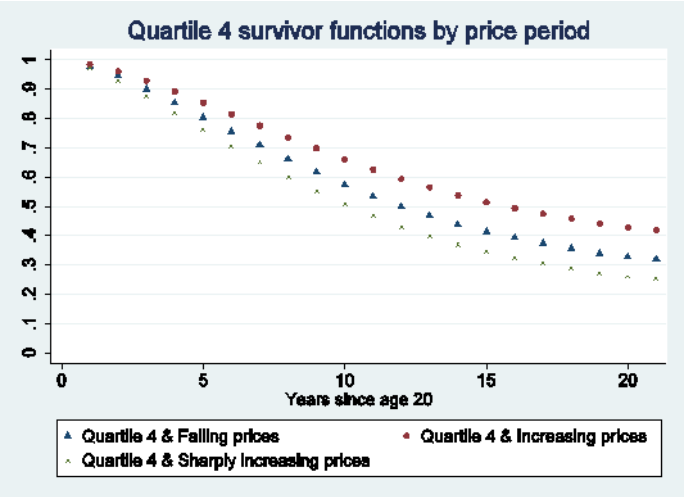


Figure 5.5 Predicted survivor function for lowest income quartile by price period

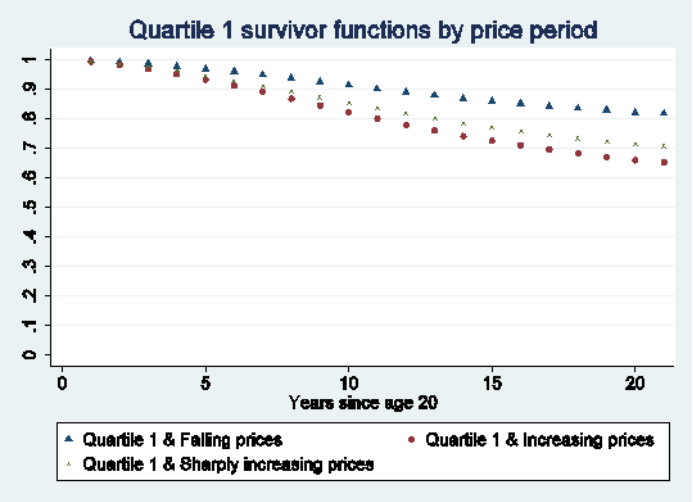
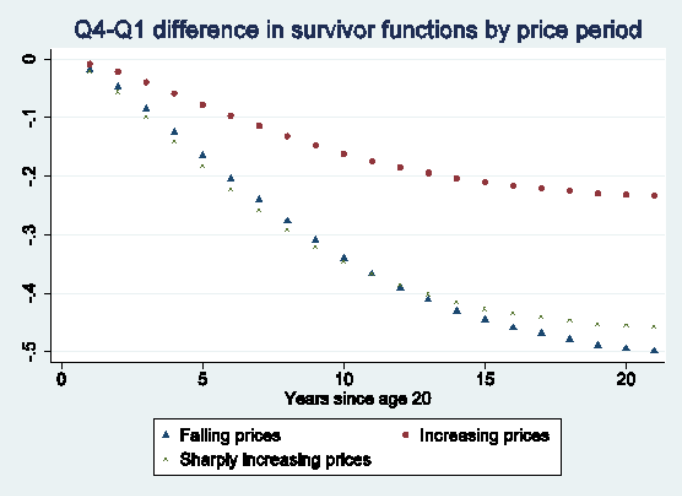


Figure 5.6 Difference in predicted survivor function between highest and lowest income quartiles by price period



To further illustrate the importance of *employment* for each of the income quartiles in relation to first time home ownership, we present the results of the third and final model in table 5.3. The full results reported in terms of coefficient estimates are in the appendix table A2. Once again, the results are presented as odds ratios. The odds of entering home ownership for quartile 1 individuals are substantially larger if employed when controlling for all other socio-economic factors. Comparing the predicted survivor functions in figure 5.7 and figure 5.8 shows that even though stable employment is important for the transitions among both the richest and the poorest groups, the absolute differences between being employed or not are greatest for the poorest. In other words, figure 5.9 suggests that unemployment is a substantial part of the reason why such a small share of the low income group does not own their own home. This result most probably reflects two issues: (i) being employed currently will lead to expectations of a more secure employment and income situation in the future, and (ii) employed individuals in the lowest quartile have a higher income than unemployed individuals.

Table 5.3 Logistic regression of the transition to first-time home ownership, focusing on the importance of employment, odds ratios

Variable	Odds ratio
Quartile 1	0.247***
Quartile 2	0.619***
Quartile 3	1.081
Quartile 4	Reference
Quartile 1 * Employed	2.397***
Quartile 2 * Employed	1.397***
Quartile 3 * Employed	0.881
Quartile *x* * Employed	Reference
--- See appendix table A3 for all other covariates ---	

Significance: * p < 0.05; ** p < 0.01; *** p < 0.001.

Note: Full results reported in terms of coefficient estimates are shown in the appendix table A3.

Figure 5.7 Predicted survivor function for highest income quartile by employment status

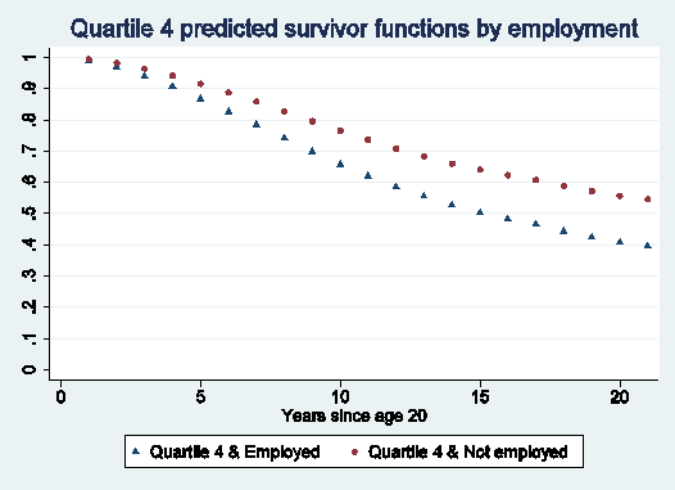


Figure 5.8 Predicted survivor function for lowest income quartile by employment status

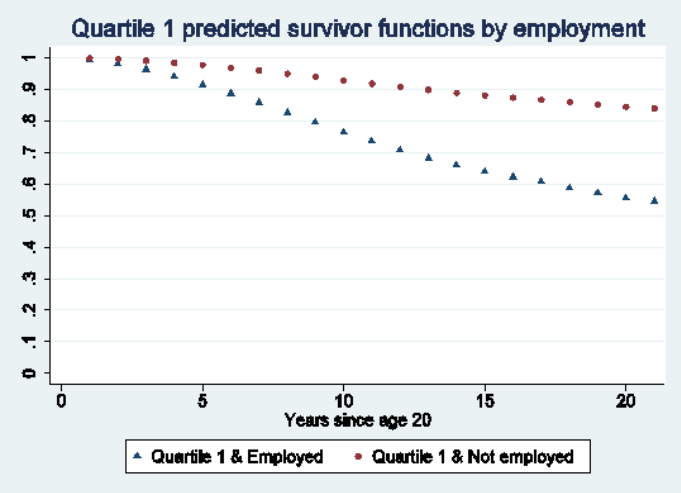
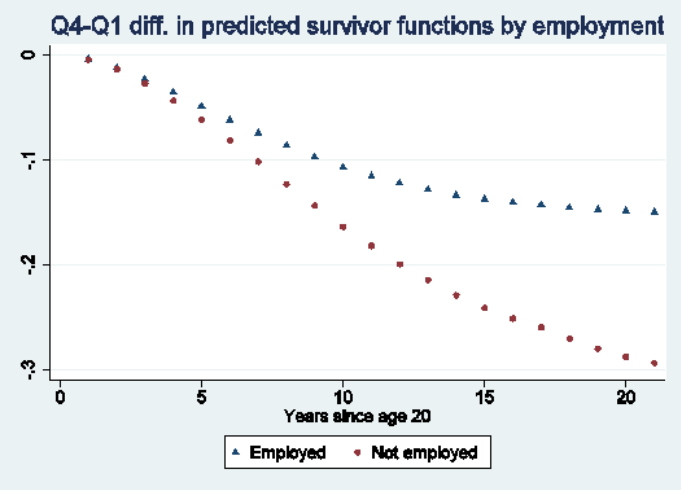


Figure 5.9 Difference in predicted survivor function between highest and lowest income quartiles by employment status



6 Discussion and conclusion

The analysis presented in this paper was motivated by a concern about an observed decline in the home ownership rate among young Danish adults in recent decades, whilst other studies show rather strong and consistent preferences for home ownership – also among younger adults. Moreover, home ownership is often associated with a range of positive socio-economic benefits such as the potential for long-run capital gains, more favourable borrowing opportunities over the short- to medium-term, tax benefits, and owner homes being situated in better neighbourhoods. The concern has been voiced perhaps most strongly in times of increasing house prices with respect to the consequences for first time buyers, but even after the onset of the financial crisis, where prices are declining, increasing unemployment and the general uncertainty about the economic situation do not necessarily make the situation much easier for potential first time buyers.

Our descriptive analyses of register-based data for male adults show that the overall share of homeowners among young adults aged 35-39 (i.e. at the end of a typical establishment phase) has declined over the period 1985-1995, but also that changes have been modest since then. The timing of entry into home ownership has also changed. Recent age cohorts have not entered home ownership as quickly as older cohorts, but they tend to catch up with the levels of home ownership achieved by previous cohorts by the time they reach their mid- to late-30s.

We also find evidence in the descriptive data that the housing market has become less accessible to lower income groups. In 1985 55% of the 35-39-year-olds in the lowest income quartile owned their own home. The same was true for only 21% of the 35-39-year-olds in the lowest income quartile in 2006. By contrast, home ownership shares were 65% and 62% for similarly aged individuals in the highest income quartile in 1985 and 2006, respectively.

These observed patterns may be due to changes in underlying socio-economic characteristics (e.g. delayed couple formation, fewer children), but may also be driven by changes that cannot be captured by these typical explanatory variables. Such alternative explanations include changing preferences and more or less difficult access to financing options.

We address the title question of affordability versus postponement in a duration model framework, where we investigate whether the apparent increase in income-related inequality in home ownership also holds once changes in measurable socio-economic variables have been taken into account. More specifically, we use discrete time duration models to understand how the importance of income – as captured by income quartile indicators – has changed over time. This is first done by considering changes across birth cohorts and secondly across calendar time. With respect to the latter, we distinguished between three specific periods in the Danish housing markets: declining, moderately increasing and sharply increasing prices.

Our results show that even after taking account of changes in underlying socio-economic characteristics, home ownership has become less accessible to lower income groups. The changes across birth cohorts are not very large, however, thereby suggesting that the socio-

economic covariates included in our model are quite successful in capturing the underlying reasons why home ownership has increasingly become out of reach for the poorest. For the richest, our results show that home ownership has become more widespread among younger cohorts even after taking account of changes in socio-economic factors.

Considering different situations in the real property market, predictions based on our estimated duration models show that high income individuals are more likely to purchase their own home both when real property prices are declining and when they are increasing sharply as compared with periods with more moderate price increases. In other words, the rich seem able and willing to enter the housing market both in times of recession and expansion. The poorest individuals are, by contrast, more at risk of unemployment and are therefore least likely to enter the housing market in times of declining house prices because these are also times of increasing job uncertainty.

Putting our results in a broader perspective and looking beyond the end of the data period considered in our study, the burst of the housing market bubble in Denmark as in other countries has sent a clear reminder that real property prices cannot continue to increase for unlimited lengths of time. On the basis of this analysis alone, we would expect that in times of increasing unemployment, that low income groups will face greater difficulties in terms of entering the home owner market despite falling house prices. In an optimistic scenario, they will postpone a first purchase to more favourable times. In a pessimistic scenario, many will never become home owners. On the other hand, we cannot base expectations for the future on past experience alone. As described earlier, financing options have become much more diverse since the mid-1980s, which was the last time house prices declined. In particular, the introduction of variable rate loans, adjustable rate loans and interest only loans have made home ownership more accessible to younger and less consolidated households.

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Appendix

Table A1 **Logistic regression of the transition to first-time home ownership, focusing on changing affordability over birth cohorts and controlling for socio-economic characteristics**

	Coefficient	Standard error	Odds ratio			Coefficient	Standard error	Odds ratio
Year 1	-4.266	0.077	0.0140***		Immigrant	-0.615	0.064	0.541***
Year 2	-3.853	0.067	0.0212***		Employed	0.860	0.029	2.363***
Year 3	-3.630	0.062	0.0265***		Ongoing education	-0.732	0.031	0.481***
Year 4	-3.548	0.061	0.0288***		Recently graduated (t/t-1)	-0.172	0.027	0.842***
Year 5	-3.469	0.060	0.0311***		Net wealth	0.001	0.002	1.001
Year 6	-3.378	0.059	0.0341***		Missing education information	-0.095	0.108	0.909
Year 7	-3.323	0.059	0.0361***		Primary education	0.197	0.029	1.218***
Year 8	-3.196	0.059	0.0409***		Vocational education	0.550	0.027	1.733***
Year 9	-3.154	0.060	0.0427***		Short further education	0.627	0.037	1.872***
Year 10	-3.078	0.061	0.0461***		Medium further education	0.604	0.037	1.830***
Year 11	-3.058	0.062	0.0470***		Long further education	0.497	0.037	1.643***
Year 12	-2.988	0.063	0.0504***		Mother home owner	0.312	0.017	1.367***
Year 13	-2.982	0.065	0.0507***		Mother vocational education	-0.033	0.015	0.967*
Year 14	-2.996	0.067	0.0500***		Mother further education	-0.105	0.021	0.900***
Year 15	-3.028	0.070	0.0484***		Missing information re. mother's education	0.097	0.042	1.101*
Year 16	-3.057	0.075	0.0471***		Has a spouse	0.588	0.029	1.800***
Year 17	-3.092	0.080	0.0454***		Recently married (t/t-1)	0.468	0.032	1.597***
Year 18	-3.115	0.088	0.0444***		Relationship duration	0.028	0.004	1.028***
Year 19	-3.152	0.099	0.0428***		Spouse older	0.045	0.021	1.046*
Year 20	-3.462	0.126	0.0314***		Spouse immigrant	0.084	0.051	1.088
Year 21	-3.584	0.179	0.0278***		Spouse employed	0.278	0.024	1.320***
Quartile 1	-1.154	0.043	0.315***		Spouse ongoing education	0.146	0.022	1.157***
Quartile 2	-0.475	0.029	0.622***		Spouse recently graduated (t/t-1)	-0.110	0.031	0.896***
Quartile 3	-0.184	0.026	0.832***		Spouse missing education information	-0.123	0.102	0.885
Born 7175	0.155	0.033	1.168***		Spouse vocational education	0.404	0.022	1.497***
Born 7680	0.398	0.052	1.489***		Spouse further education	0.601	0.026	1.825***
Born 8186	0.692	0.150	1.998***		Spouse net wealth	-0.048	0.008	0.953***
Q1*Born7175	-0.028	0.061	0.973		Number of children	-0.170	0.028	0.844***
Q1*Born7680	-0.263	0.078	0.769***		Children 0-2 years old	0.479	0.036	1.614***
Q1*Born8186	-0.923	0.176	0.397***		Children 3-6 years old	0.325	0.043	1.384***
Q2*Born7175	0.103	0.043	1.109*		Cooperatively owned home	-0.215	0.029	0.807***
Q2*Born7680	-0.057	0.061	0.945		Metropolitan Copenha-	-0.481	0.035	0.618***

	Coefficient	Standard error	Odds ratio			Coefficient	Standard error	Odds ratio
					gen			
Q2*Born8186	-0.415	0.160	0.660**		Greater Copenhagen	-0.009	0.031	0.991
Q3*Born7175	0.061	0.041	1.063		Large city	-0.143	0.027	0.866***
Q3*Born7680	0.030	0.060	1.03		Small town	0.022	0.039	1.022
Q3*Born8186	-0.221	0.165	0.802		Other areas	0.216	0.026	1.241***
					Local price level 25% cheapest	-1.925	0.043	0.146***
					Local price change 25% cheapest	0.356	0.045	1.428***
					Local price missing in-formation	-0.761	0.030	0.467***
Wald chi-square	151978				Log Likelihood	-84800		
N	596234				Prob > chi2	0.000		

Note: "Year *x*" is an indicator variable measuring the number of years since age 20.

Table A2 **Logistic regression of the transition to first-time home ownership, focusing on changing affordability across different housing price situations and controlling for socio-economic characteristics**

	Coefficient	Standard error	Odds ratio		Coefficient	Standard error	Odds ratio
Year 1	-4.251	0.077	0.0142***	Immigrant	-0.608	0.064	0.545***
Year 2	-3.866	0.067	0.0209***	Employed	0.859	0.029	2.361***
Year 3	-3.667	0.063	0.0256***	Ongoing education	-0.738	0.031	0.478***
Year 4	-3.601	0.061	0.0273***	Recently graduated (t/t-1)	-0.169	0.027	0.845***
Year 5	-3.536	0.061	0.0291***	Net wealth	0.001	0.002	1.001
Year 6	-3.459	0.060	0.0315***	Missing education information	-0.092	0.108	0.913
Year 7	-3.421	0.060	0.0327***	Primary education	0.195	0.029	1.215***
Year 8	-3.310	0.060	0.0365***	Vocational education	0.550	0.027	1.733***
Year 9	-3.289	0.060	0.0373***	Short further education	0.628	0.037	1.874***
Year 10	-3.232	0.061	0.0395***	Medium further education	0.611	0.037	1.842***
Year 11	-3.235	0.062	0.0394***	Long further education	0.497	0.037	1.644***
Year 12	-3.198	0.063	0.0408***	Mother home owner	0.313	0.017	1.367***
Year 13	-3.212	0.065	0.0403***	Mother vocational education	-0.024	0.015	0.977
Year 14	-3.249	0.067	0.0388***	Mother further education	-0.095	0.021	0.909***
Year 15	-3.312	0.071	0.0364***	Missing information re. mother's education	0.097	0.042	1.102*
Year 16	-3.380	0.075	0.0340***	Has a spouse	0.575	0.029	1.777***
Year 17	-3.478	0.080	0.0309***	Recently married (t/t-1)	0.459	0.032	1.583***
Year 18	-3.531	0.088	0.0293***	Relationship duration	0.027	0.004	1.028***
Year 19	-3.617	0.100	0.0269***	Spouse older	0.045	0.021	1.046*
Year 20	-3.924	0.127	0.0198***	Spouse immigrant	0.091	0.051	1.095
Year 21	-4.043	0.180	0.0176***	Spouse employed	0.288	0.024	1.334***
Quartile 1	-0.866	0.036	0.421***	Spouse ongoing education	0.149	0.022	1.160***
Quartile 2	-0.140	0.026	0.869***	Spouse recently graduated (t/t-1)	-0.102	0.031	0.903***
Quartile 3	0.014	0.025	1.014	Spouse missing education information	-0.114	0.102	0.892
Declining prices 1985-1993	0.361	0.045	1.435***	Spouse vocational education	0.405	0.022	1.499***
Strongly rising prices 2004-2006	0.610	0.037	1.840***	Spouse further education	0.613	0.026	1.847***
Q1* Declining prices	-1.200	0.080	0.301***	Spouse net wealth	-0.049	0.008	0.952***
Q1* Strongly rising prices	-0.855	0.068	0.425***	Number of children	-0.163	0.028	0.850***
Q2* Declining prices	-0.903	0.055	0.405***	Children 0-2 years old	0.456	0.036	1.578***
Q2* Strongly rising prices	-0.658	0.047	0.518***	Children 3-6 years old	0.299	0.043	1.349***
Q3* Declining prices	-0.417	0.050	0.659***	Cooperatively owned home	-0.220	0.029	0.802***
Q3* Strongly rising prices	-0.368	0.045	0.692***	Metropolitan Copenhagen	-0.518	0.034	0.596***
				Greater Copenhagen	-0.048	0.031	0.953
				Large city	-0.150	0.027	0.861***
				Small town	0.026	0.039	1.026

	Coefficient	Standard error	Odds ratio			Coefficient	Standard error	Odds ratio
					Other areas	0.226	0.026	1.253***
					Local price level 25% cheapest	-1.828	0.042	0.161***
					Local price change 25% cheapest	0.305	0.045	1.356***
					Local price missing information	-0.712	0.035	0.491***
Wald chi-square	151236				Log Likelihood	-84633		
N	596234				Prob > chi2	0.000		

Note: "Year *x*" is an indicator variable measuring the number of years since age 20.

Table A3 **Logistic regression of the transition to first-time home ownership, focusing on the importance of employment and controlling for socio-economic characteristics**

	Coeffi-cient	Standard error	Odds ratio			Coefficient	Standard error	Odds ratio
Year 1	-4.005	0.118	0.0182***		Immigrant	-0.606	0.064	0.546***
Year 2	-3.656	0.111	0.0258***		Employed	0.525	0.093	1.691***
Year 3	-3.468	0.109	0.0312***		Ongoing education	-0.731	0.031	0.481***
Year 4	-3.402	0.108	0.0333***		Recently graduated (t/t-1)	-0.186	0.028	0.830***
Year 5	-3.328	0.107	0.0359***		Net wealth	0.001	0.002	1.001
Year 6	-3.239	0.107	0.0392***		Missing education infor-mation	-0.091	0.108	0.913
Year 7	-3.183	0.106	0.0415***		Primary education	0.194	0.029	1.215***
Year 8	-3.051	0.106	0.0473***		Vocational education	0.545	0.027	1.724***
Year 9	-3.004	0.106	0.0496***		Short further education	0.624	0.037	1.867***
Year 10	-2.933	0.107	0.0533***		Medium further education	0.621	0.037	1.862***
Year 11	-2.919	0.107	0.0540***		Long further education	0.504	0.037	1.655***
Year 12	-2.862	0.108	0.0572***		Mother home owner	0.310	0.017	1.364***
Year 13	-2.861	0.109	0.0572***		Mother vocational educa-tion	-0.030	0.015	0.97
Year 14	-2.881	0.111	0.0561***		Mother further education	-0.105	0.021	0.901***
Year 15	-2.920	0.113	0.0540***		Missing information re. mother's education	0.097	0.042	1.102*
Year 16	-2.957	0.116	0.0520***		Q1*Employed	0.874	0.112	2.397***
Year 17	-3.009	0.120	0.0493***		Q2*Employed	0.334	0.104	1.397**
Year 18	-3.043	0.125	0.0477***		Q3*Employed	-0.127	0.108	0.881
Year 19	-3.098	0.134	0.0451***		Has a spouse	0.570	0.029	1.768***
Year 20	-3.407	0.155	0.0331***		Recently married (t/t-1)	0.465	0.032	1.593***
Year 21	-3.531	0.201	0.0293***		Relationship duration	0.029	0.004	1.029***
Quartile 1	-1.400	0.115	0.247***		Spouse older	0.043	0.021	1.044*
Quartile 2	-0.480	0.106	0.619***		Spouse immigrant	0.072	0.051	1.075
Quartile 3	0.078	0.109	1.081		Spouse employed	0.288	0.024	1.334***
Born 7175	0.186	0.038	1.204***		Spouse ongoing education	0.141	0.022	1.152***
Born 7680	0.270	0.062	1.310***		Spouse recently graduated (t/t-1)	-0.113	0.031	0.893***
Born 8186	0.435	0.157	1.545**		Spouse missing education information	-0.117	0.102	0.889
Q1*Born7175	-0.311	0.065	0.732***		Spouse vocational educa-tion	0.408	0.022	1.504***
Q1*Born7680	-0.476	0.086	0.621***		Spouse further education	0.610	0.026	1.840***
Q1*Born8186	-0.989	0.185	0.372***		Spouse net wealth	-0.047	0.008	0.954***
Q2*Born7175	-0.016	0.046	0.985		Number of children	-0.183	0.028	0.833***
Q2*Born7680	-0.006	0.068	0.994		Children 0-2 years old	0.481	0.036	1.617***
Q2*Born8186	-0.189	0.166	0.828		Children 3-6 years old	0.320	0.043	1.377***
Q3*Born7175	0.055	0.045	1.056		Cooperatively owned home	-0.216	0.029	0.806***
Q3*Born7680	0.165	0.068	1.179*		Metropolitan Copenhagen	-0.491	0.035	0.612***
Q3*Born8186	0.010	0.170	1.01		Greater Copenhagen	-0.016	0.031	0.984
Declining prices 1985-1993	0.494	0.049	1.640***		Large city	-0.146	0.027	0.864***

	Coeffi-cient	Standard error	Odds ratio			Coefficient	Standard error	Odds ratio
Strongly rising prices 2004-06	0.467	0.043	1.595***		Small town	0.018	0.039	1.018
Q1* Declining prices	-1.410	0.085	0.244***		Other areas	0.213	0.026	1.237***
Q1* Strongly rising prices	-0.593	0.074	0.552***		Local price level 25% cheapest	-1.904	0.043	0.149***
Q2* Declining prices	-0.892	0.058	0.410***		Local price change 25% cheapest	0.362	0.046	1.437***
Q2* Strongly rising prices	-0.623	0.052	0.536***		Local price missing infor-mation	-0.740	0.035	0.477***
Q3* Declining prices	-0.372	0.053	0.689***					
Q3* Strongly rising prices	-0.404	0.050	0.668***					
Wald chi-square	149475				Log Likelihood	-84448		
N	596234				Prob > chi2	0.000		

Note: "Year *x*" is an indicator variable measuring the number of years since age 20.

Dansk sammenfatning

Chantal Pohl Nielsen & Kræn Blume Jensen

Boligejerskab blandt yngre danskere:
Ændringer over tid og indkomstens betydning

Andelen af boligejere blandt yngre danskere er faldet i løbet af perioden 1985-1995, hvorimod ændringerne har været mere beskedne siden da. Beskrivende analyser af registerdata indikerer, at ejerboligmarkedet er blevet mere ekskluderende i forhold til dem, som tilhører den laveste indkomstkvartil. En række centrale socioøkonomiske karakteristika ved denne gruppe har imidlertid også ændret sig med tiden. Vi anvender diskrete varighedsmodeller til at undersøge, hvordan betydningen af indkomst for potentielle første boligkøb har ændret sig med tiden. Vi ser på ændringer over fødselskohorter og over kalendertidsperioder. Med hensyn til sidstnævnte skelner vi mellem tre perioder på det danske boligmarked: (i) 1985-1993, hvor priserne var faldende, (ii) 1994-2003, hvor priserne var moderat stigende, og (iii) 2004-2006, hvor priserne steg meget kraftigt.

Vores resultater viser, at når vi tager højde for ændringer i socioøkonomiske karakteristika, så er boligejerskab blevet mindre tilgængeligt for personer, som tilhører den laveste indkomstkvartil. Ændringer over fødselskohorterne er imidlertid ikke særligt store, hvilket indikerer, at de forklarende variable, vi har taget med i modellen, fanger de underliggende årsager til, at andelen af boligejere blandt lavindkomstgruppen er faldet. For personer i den øverste indkomstkvartil viser vores resultater, at boligejerskab er blevet mere udbredt i de yngre fødselskohorter, selv efter vi har taget højde for ændringer i socioøkonomiske faktorer.

Prædiktioner baseret på vores varighedsmodeller viser, at personer i den øverste indkomstkvartil har større sandsynlighed for at blive førstegangskøbere både i perioder med faldende huspriser og i perioder med stærkt stigende priser når der sammenlignes med perioden med mere moderate husprisstigninger. Med andre ord synes de rigeste både at have mulighed for og være villige til at gøre deres indtog på ejerboligmarkedet både i høj- og lavkonjunktur. Omvendt viser vores prædiktioner, at personer med de laveste indkomster har stor risiko for arbejdsløshed og er derfor mindre tilbøjelige til at købe ejerbolig i perioder med lavkonjunktur på trods af faldende priser.

Declining Home Ownership among Young Danish Adults:

An Affordability Problem or Just Postponement?

The share of homeowners among young Danish adults has declined over the period 1985-1995, whereas changes have been modest since then. We use discrete time duration models to investigate how the importance of income for first-time home ownership has changed over time. Our results show that even after taking account of changes in socio-economic characteristics, home ownership has become less accessible to the lowest income groups. Changes across birth cohorts are not large, however, suggesting that our model is successful in capturing the underlying reasons behind this decline. For the highest income groups, our results show that home ownership has become more widespread among younger cohorts even after considering changes in socio-economic factors. We also find that the rich have been able to enter the housing market both in times of recession and expansion. The poorest are more at risk of unemployment and have therefore been least likely to enter the housing market in times of recession.

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