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Abstract

The aim with this paper is to investigate whether parental wealth influences the tenure choice of young adults. Sweden as a welfare state has historically been considered as strong and with an ambitious housing policy. However, since the early 1990's there has been a decrease in housing subsidies and a rolling back of the welfare state. These changes have been associated with rising house prices and costs which have worsened young adults' chances on the housing market. Such problems may increase the importance of parental wealth. Data from three birth-cohorts that entered the housing market during different periods suggest that family background has now become an important factor in describing young adults' housing situation. Young adults with parents who are owner occupiers and whose fathers have a university degree seem to have become more likely to buy their housing. The results also indicate that growing up with a single parent – a factor that has been shown to put children at risk – now also seems to have become a constraint on choice in the housing market. The result from this three-cohort study indicates that housing opportunities of young adults may have become a matter of class affiliation.

Keywords: Housing tenure; Family background, Wealth, Young adult

Sammanfattning

Syftet med denna studie är att undersöka om föräldrars välstånd påverkar unga vuxnas boendemöjligheter. Sverige har historiskt sett betraktats som en utpräglad välfärdsstat, med en ambitiös bostadspolitik. Sedan tidigt nittiotal har Sverige dock upplevt minskade bostadssubventioner och en tillbakagång av välfärdsstaten. Dessa förändringar har förknippats med en ökning i både bostadspriser och bostadkostnader. Detta har försvårat unga vuxnas etablering på bostadsmarknaden, något som kan innebära att föräldrars välstånd får större betydelse för de ungas bostadsmöjligheter. Data från tre olika födelsekohorter som etablerade bostadsmarknaden under olika bostadspolitiska perioder sig indikerar familjebakgrunden nu har blivit en viktig faktor för att förklara unga vuxnas bostadssituation. Om föräldrarna ägt sin bostad eller om fadern har en universitetsutbildning, så har de unga vuxna också större möjlighet att kunna köpa sig en bostad. Resultaten av den här studien tyder också på att om man vuxit upp med en ensamstående förälder - vilket i tidigare studier visat sig vara en riskfaktor för barn i olika avseenden – så har detta även blivit en begränsning på bostadsmarknaden. Undersökningen indikerar därmed att möjligheten för unga vuxna att kunna äga sin bostad kan ha kommit att bli en fråga om klasstillhörighet.

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1. Introduction

The lack of suitable housing for young adults could have serious consequences for family formation and fertility and in the future also for the labor market and the reproduction of society. Furthermore, for households choosing to own, their housing is in general the single most important investment and constitutes the largest part of a standard household's capital. Ownership has usually been seen as providing financial security. However, the financial crises today clearly suggest that this is questionable, the real house prices in the US e.g. has decreased by about 25 percent since 2006.² The housing situation of young adults is therefore an important topic in modern housing economics. Recent studies have indicated that it has become more and more difficult for young Swedish adults not only to establish themselves on the housing market, but to finance purchase of a house suitable as a family residence (SOU 2007:14). The reason for this seems to be increased prices and housing costs, together with the fact that housing construction has not kept pace with population growth. These constraints have worsened young adults' chances on the housing market. Providing equal opportunities is viewed as desirable by many politicians. If individual housing opportunities or economic status depend on parents' wealth, this undermines equal opportunities.

This paper investigates whether parental wealth influences the tenure choice of young adults. More precisely, cohort data are used to test whether the family background has increased in importance during recent times when young adults have faced increasing problems in the housing market. The data to be used is a very recent longitudinal data set, The Swedish Housing and Labor Market Career Cohort study (HOLK). HOLK includes self-reported housing biographies from three different birth-cohorts. The oldest birth cohort could make use of the Million Program when they entered the housing market while the youngest cohort experienced housing shortage and a less regulated housing policy when they was to become established on the housing market.³ Unlike many other individual data this cohort design of HOLK makes it possible to distinguish between an age effect and a genuine cohort effect. If the results of this study show that parental wealth has a larger impact on the youngest cohorts housing decision than on the oldest one, we will draw the conclusion that parental wealth has increased in importance.

The definition of parental wealth will, throughout this paper, be limited to family background information on the father's socioeconomic status, if the parents owned their housing and whether the respondent grew up with a single – usually female – parent.⁴ Earlier studies have shown that owner occupiers have higher future household income (Xiao Di 2007). It has also been shown that a family's class assignment is strongly influenced by the father's or husband's occupational group (Baxter 1994). Moreover, living with a single parent is associated with negative consequences for the child (which is often attributed to high rates of poverty among single parents) (McLanahan and Sandefur 1994:24).

This study contributes to earlier research in several ways: first, it analyses whether there is a cohort effect to be found in the tenure decision; second, it measures the role and the change in importance of parental wealth in the tenure choice decision with different wealth indicators; third, the study comprises a time period of almost thirty years; fourth, unlike

² IMF World Economic Outlook, October 2008.

³ The Million Program was a housing program that was implemented in Sweden in 1965. The aim of the program was to build a million dwellings in a 10-year period to make sure that all citizens could have a home at a reasonable price.

⁴ Parent's ownership is defined as the parents being tenant-owners or owner occupier most of the time until the respondent's age of 16. "Grew up with single parent" refer to respondents living with a single parent most of the time until the age of 16 and finally, the father's socioeconomic status refers to the father's main occupation until the respondent's age of 16. However, the mother's socioeconomic status is used in those cases when the respondent grew up with a single mother.

earlier studies on Swedish data this study distinguishes between the three housing tenures: renting, owner occupation and tenant-owner cooperatives. This approach may facilitate comparisons with other countries since there are some important differences between tenant-owner cooperatives and owner-occupied housing.⁵ A tenant-owner apartment is often a first step by childfree young households on a housing career to owner occupation of a house to which the households move when children are born. When there is a change in family formation and fertility there is often also a change in housing needs. The tenure often changes from rental to owner occupier, from multi-family dwellings to detached single family houses and as children leaves the parental home and the household decreases in size there is often a move to a smaller house or apartment (Clark and Onaka 1983). However, as this study is focused on young adult's housing decisions it will catch only the early stage in the housing career.

The estimation results suggest that the increasing problems for young adults to become established on the housing market have increased the effect of parental wealth and tenant-owner cooperative seems now to have become a housing alternative essentially for young adults without children but with resourced parents.

The disposition of the paper is as follows: section 2 includes a brief overview of previous studies on tenure choice decisions of young adults, while section 3 presents the tenure choice theory and methodology used in the study. Section 4 presents details of the data and the econometric analysis. The result is presented in section 5 and section 6 summarizes and concludes the paper.

2. Brief overview of previous studies on tenure choice decisions of young adults

Most studies dealing with housing decisions of young adults conclude that from the individual's point of view, tenure choice is determined by the relative cost of owning to renting as well as demographic variables. Given that resources are equal married couples and cohabitants are, for example, considerably more likely to become owner occupiers than single persons (Mulder 2003). This is also the case for households with children. Another economic factor that has been shown to affect the choice of tenure is potential wage. Haurin et al. (1997), for example, suggest that potential wage is a better measure to capture young adults' earnings capacity than real and permanent income; real and permanent income are likely to be endogenous as labor supply and housing decisions are made jointly.

Studies have shown that the availability of mortgage finance has a positive impact on the rate of owner occupation among the young (Haurin et al. 1994; Ortalo-Magné and Rady 1999; Chiuri and Jappelli 2003). Furthermore, Boehm (1993), Engelhardt (1994), Jones (1995) and Haurin et al. (1997) highlight the role of household savings in tenure decisions. However, household wealth accumulation is endogenous in a tenure choice decision – as first time owner occupier save in order to purchase a home – and it is difficult to find good instruments for wealth. A few studies have included variables describing family background when studying the housing decisions of young adults. As a suggestion of wealth transfer, studies on first-time homeownership have emphasized the role of parents' homeownership (Duncan et al 1996; Mulder and Smits 1999, Clark and Mulder 2000). Rather than through capital transfers per se, the wealth of parents seems to influence children's house purchases by building up

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⁵ Owner occupied housing generally refers to detached single-family houses where the owners have full real estate rights and obligations while tenant-owner cooperatives and rental apartments are mostly, with some exceptions, multi-family houses (it is not possible to distinguish between tenant-owner cooperatives in multi-family houses and tenant-owner terraced houses in the data). A tenant-owner cooperative requires membership of a housing cooperative association where the membership rights are obtained through a capital investment and maintained by monthly charges to cover the cost of the association's loans as well as the operating costs etc. The members do not have full ownership rights and obligations but are allowed to sell their dwelling on the market.

their own stock of human and financial capital. Mulder and Smits (1999), however, find that parents that own their houses in the Netherlands are much more likely than non-owning parents to transfer substantial sums of money to their children. Furthermore, home owning children that own their houses are more likely to have received such sums than non-owning children.

Some studies have treated household formation and the choice of tenure mode as joint decisions. According to Haurin et al. (1994), neglecting the household formation decision in a study of households' tenure choice may lead to an exaggerated positive impact of earnings capacity on the tendency to become an owner occupier. Åsberg (1999), who studied Swedish young adults' housing decision as well as young adult's household formation decision before and after the 1991 tax reform, takes into account the possible simultaneity between these two decisions. He finds that these decisions are indeed made jointly. However, neglecting the cross-equation correlation seems, in contrast to Haurin et al. to have no major impact on the estimated coefficients in the housing decision model.

This review of previous research reveals that although we know a good deal about housing decisions of young adults, we know less about whether such decision-making is constant or whether there is a change over time in the pattern of access to owner occupation. Furthermore, we know little about whether family background has increased in importance during recent times when young adults have faced increasing problems in becoming established on the housing market.

3. Tenure choice theory and methodology

The application of the theory of tenure choice modeling on the role of price uncertainty is presented in Rosen et al. (1984). In this study, however, the housing service is available not only as the modes of renting and of owner occupancy but also as the mode tenant-owner cooperative. We will distinguish between price uncertainty for both owner occupiers and tenant-owners and rent-level uncertainty for tenants (for tenant-owners the two are related, if co-operative rents go up too much prices fall). While prices for owner occupancy and tenantowner cooperatives are set by the market, the rents for rental apartments are in Sweden, since 1968, regulated by what is known as the utility-value provisions. The rent level is based upon the companies' total costs and decided upon in a collective bargaining between three parties the respective organizations of the real estate owners (i.e. both private profit landlords and public non-profit housing companies) and the uniquely strong tenants' association. The real costs of tenant-owner cooperatives and owner occupation however depend on a number of unknowns such as interest rates and future housing capital gains. Those uncertainties constitute either a cost or a surplus value. Rental housing decisions also contain an element of uncertainty. However, with the Swedish regulated rents an apartment rent cannot vary in an unconstrained manner from one year to another. For the sake of simplicity, we therefore assume no uncertainty in the rental market.

The theory of tenure choice modeling assumes that household utility depends upon the consumption of housing services and a composite of all other goods. The price of the composite good is assumed to be known with certainty and is normalized to unity. The household makes its choice by comparing the outcomes and maximizing utility from the different consumption alternatives. Let $V^{o}(\tilde{P},1,y,z)$ be the maximum utility associated with owning, $V^{co}(\tilde{C},1,y,z)$ maximum utility associated with buying a tenant-owner cooperative and $V^{R}(R,1,y,z)$ be the maximum utility associated with renting. \tilde{P} is the real cost of owner occupation and \tilde{C} the real cost of tenant-owner cooperatives, none of which is known with certainty. R is the real price for rental housing. y is the permanent income over the planning period and z is a variable that explains household housing tenure preferences. Households

compare the utilities from the different housing tenure alternatives and choose the tenure that is associated with the highest utility level. If the preferred tenure mode turns out to be owner occupancy, a house will be purchased. We do not, however, observe the utility associated with the different housing tenure choices nor do we observe the difference in utility between these alternatives. What we do observe is the actual outcome, i.e. if and when a household chooses a specific housing tenure. We therefore define an indicator variable I_i with $I_i=j$, j=0, 1, 2, such that $I_i=0$ if household i chooses to rent, $I_i=1$ if household i chooses to buy an owner occupation, $I_i=2$ if household i chooses to buy a tenant-owner cooperative. The variable I_i is determined as:

$$I_{i}=j \text{ if } \arg\max_{k}(I_{ki}^{*})=j, \ I_{ki}^{*}=\beta_{ki}^{'}x_{i}+\alpha_{ki}F_{i}+\varepsilon_{ki}$$
 $k=0,1,2$ (1)

 I_{ki}^* is the latent variable that indicates the utility associated with the choice k. The vector x_i represents the exogenous explanatory variables that influence the household housing tenure choice and contains variables specific to the individuals and not to the alternative choices. Furthermore, the variable F_i represents the family background variables and the parameter α_i measures the effect of family wealth. The stochastic term ε_{ki} captures the influence of unobservable temporary factors affecting for example tastes. x_i can be decomposed into demographic and household specific variables and variables controlling for geographical and macroeconomic differences.

To capture what a 'user' of a house really pays or would pay, net of taxes and financing etc, the user cost, i.e. the cost to use a unit of housing capital each period, is included in the model. The user cost can be used to examine effects from macroeconomic shocks (such as tax changes) on rents, values and market behaviors – for example people's choice of tenure (Hendershott and Shilling 1982). Young adults with their greater mobility are supposed to be more sensitive to changes in user cost, and an increase in user cost is consequently expected to cause a decline in owner occupation rates. The user cost has in earlier tenure studies been included as a factor in the relative cost of owning to renting, which has been shown to vary inversely with the probability of being a home owner. However, since this study comprises a time period of almost thirty years with major fluctuations both in house prices and in user cost we will include the user cost as well as a price index as separate variables in the model. Great variations in price indexes may, for example, adumbrate changes in user cost. This possibility is discussed in Åsberg (1999) as a reason for why he receives a result that is contrary to what he expects. Furthermore, it is hard to find good estimates of standard amounts of owner cost since the time period of interest for this study comprises several different types of property taxations and it is not obvious how to correct price data for transitions between such two periods.

The two most widely used probabilistic choice models are the multinomial logit (MNL) model and the multinomial probit (MNP) model (McFadden 1973). Technically, these models are very similar: they differ only in the distribution of the error terms. The MNL model assumes errors that have the type-1 extreme value distribution while the MNP model has errors which are not necessarily independent and are distributed by a multivariate normal distribution. Our model will be estimated by a MNL model set up. The MNL model makes the assumption of independence of irrelevant alternatives (IIA). This means that adding or

⁶For respondent i in region j in Sweden, the annual relative cost of owning to renting is $RELCOST_{ii} = OWNERCOST_{ii} / R_i = USERCOST_{ii} / R_i$

 V_j is the local cost of purchasing a standard amount of housing in region j and R_j is the annual cost of a standard amount of rented housing in region j.

deleting alternative choices does not have any effect on the odds among the remaining choices. If the IIA assumption is invalid, the results of the estimated MNL model could be inappropriate. The MNP model that assumes normal errors is usually proposed for the case when errors are correlated, since this potentially removes the IIA assumption. This is, however, mentioned as the only real advantage over the MNL model. In the present study, the independence of irrelevant alternative (IIA) assumption of the MNL model will explicitly be tested. However, Kropko (2008) concludes that MNL outperforms MNP in all but the most severe violations of IIA; the MNL model gives more accurate point estimates and also more frequently reports the correct sign and significance level than the MNP model. The MNL model can be estimated by maximum likelihood and the likelihood function L_i could be written as

$$L_{i} = P[I_{i1}, I_{i2}, I_{i3}]$$
(2)

The parameters are then estimated by maximizing the log likelihood. The model is estimated separately for each cohort. Given the difficulty of interpreting coefficient estimates, estimates of the marginal effect of each variable are also presented. The initial model is estimated without including family wealth variables; a civil status dummy, two child dummies, one for 1 child and one if more than 1 child, a student dummy, if the respondent is female, potential wage, user cost and variables controlling for geographical differences are included as explanatory variables. As for the civil status dummy, "spouses" is the base group and for the child dummies, "no children" is the base category. We then include the family background variables: if the respondents' parents owned their housing (*p-own*), if the respondent grew up with a single parent (*s-parent*) and information on the father's socioeconomic status i.e. university educated (*f-univ*), self-employed (*f-self-e*) or farmer (*f-farm*). As for the father's socioeconomic status, "worker" is the base category. Since the different family background variables may be correlated we will include them separately one by one.

4. Data source and sample

The primary data set for this study is derived from The Swedish Housing and Life Course Cohort Study (HOLK) which is provided by the Institute for Future Studies.⁷ The data collection for HOLK, which covered a stratified random sample of 3600 Swedish born individuals with birth year 1956, 1964 and 1974, was conducted in early 2005. The response rate was 62.5 percent, which could be considered as good: 782 respondents born in 1956, 708 born in 1964 and 752 born in 1974, i.e. totally 2242 respondents residing in 211 different municipalities. HOLK is a combination of survey and register data and the register part contains information about, for example, income and education for both the respondents and their partners. The survey is unique in that it collected a variety of detailed information about the respondents housing career, from their housing market entry to their housing situation today. There is no other current Swedish data available that contain detailed information on housing careers. Furthermore, the data contains information about the respondents' civil status as well as changes in civil status and information about the respondent's children, if any. The respondents were also asked questions about their family background, their environment while growing up and their attitudes towards housing, children and family. All information is available for the years 1974-2003.

⁷ The questionnaire and the selection of register data for the data collection have been designed by Sara Ström, sociologist at the Institute for Future Studies and the Department of Sociology, Stockholm University, in collaboration with, among others, Professor Elizabeth Thomson, the Department of Sociology, Stockholm University and University of Wisconsin-Madison, and Statistics Sweden.

This study is limited to cover young adults born in 1956, 1964 and 1974 when they are in the age group 20-29. The reason why this age limit is specifically chosen is a combination of the fact that it is hard to find data for rent levels as well as data on interest rates before 1976, and the fact that we will be able to compare the individuals from different birth-cohorts when they are in the same age. The respondents born in 1956 were in the age group 20-29 during the years 1976-1985, the 1964 cohort were in that age during the years 1984-1993, and the youngest cohort born in 1974 during the years 1994-2003. So the respondents are studied earliest from their age of 20 or from the time when they became established on the housing market and they are studied at most until the age of 29 or until they become owners, i.e. the respondent is removed from the survey when buying an owner occupation or a tenant-owned cooperative apartment. Those respondents that lived in owner occupation or a tenant-owned cooperative before the age of 20 as well as those respondents that didn't live independently before the age of 29 were excluded together with those respondents with missing variables in the housing biography. This resulted in 711 respondents born in 1956, 640 born in 1964 and 706 born in 1974, i.e. a reduced sample to 2051 respondents. In the analysis of non-responses made by Statistics Sweden (SCB), it appears that women have responded to a greater extent than men and married couples to a greater extent than singles. To reduce skewness resulting from non-responses and to be able to draw conclusions at the population level, i.e. 314 768 individuals born in 1956, 1964 or 1974, calibration weights have been calculated by Statistics Sweden, which are used in the estimations.

As already mentioned, some information has been added to the data. The user cost is calculated on individual and household level for all years. As the construction of the user cost now could be considered to be a standard procedure and therefore familiar we will not go through the derivation in detail (see for example Dougherty and Van Order, 1982:155, for a careful derivation). The user cost expressed as the marginal user cost is given by

$$uc = (r(1-m) + d + u + T - \pi)$$
 (3)

It depends on the nominal interest net of marginal tax r(1-m) plus the rate of depreciation (d) which requires maintenance (u) to maintain constant quality plus the tax that corresponds to the present property tax (T) – owners in Sweden are taxed for the implicit value of use of the housing – minus expectations of future house price inflations (π).⁸ The average imputed income tax rates for different income levels and years (Hansson 1983) are used to calculate m for the years 1976-1990. We have taken for granted that households are rational and well informed and that it is therefore reasonable to assume that not single households have written the loan on the person with highest income to get the largest possible deduction. After the 1991 tax reform all capital income is taxed uniformly at a rate of 30 percent, accordingly m is set to 0.3 between the years 1991-2003 for all households. Since it is not possible to get housing interest rates for the whole time period of 1976-2003, we have used interest rate for a ten year government bond, received from Statistics Sweden, to calculate r. Furthermore, we will set depreciation (d) to 0.0235 and maintenance (u) to 0.0265.⁹ The maintenance cost, however, increased on average by 25 percent after the tax reform of 1991 due to VAT

⁸If the housing is financed with the owner's own capital the term r(1-m) represents an opportunity cost which is what the owner would have received if he placed his capital in a bank instead of buying a house; the nominal rent taxed with marginal tax (see Agell et al., p. 70, 1995). Most households, however, finance their housing by loan. This term now represents an expense; m is the tax rate of capital gains against which the owner makes his interest deductions. We will assume that the households finance their housing by loan, i.e. we assume all houses and apartments in co-operatives to be mortgaged houses.

⁹Depreciation is estimated by Bengt Hansson and maintenance cost is estimated by Peter Englund from the Housing and Rent Surveys (bostads-och hyresundersökningarna, BHU). These numbers are also used in Åsberg (1999).

increment; maintenance was before 1991 exempt from VAT. In addition, individuals are assumed to have adaptive expectations about the nominal rise in house prices, i.e. we use a weighted average of past values of inflation as (π) . Furthermore, T, the property tax, is equal to $0.02 \cdot \lambda \cdot m$ for the years 1976-1985, where λ is the assessed tax value (a share of the market value) and m is the individual income tax rate (Agell et al. 1995:70-72). In the tax reform of 1983-85 this changed and the standard tax now became the same for all households, i.e. T is equal to $0.014 \cdot 1/3 \cdot \lambda$ for the years 1985-1990. The standard tax was fully replaced by the property tax in the 1991 tax reform, i.e. T is equal to $0.015 \cdot \lambda$ for the years 1991-2003. The assessed tax value should in principle be 75 percent of the market value. Englund et al. (1995), however, show that the assessed tax value in reality has been closer to 50 than 75 percent. We will follow them and set $\lambda = 0.50$.

To control for the geographic location, i.e. for example differences in house prices and local housing supply, we have included the real estate price index (received by Statistics Sweden) as well as municipality dummies. In the real estate price index real estates are graduated by their assessed value and divided into different taxation classes. These classes then constitute a weighting system when calculating price indexes for different regions. The real estate price index also accounts for locations near the coastline where a municipality could be a too rough measure. However, we will make a sensitivity test and include different controls for the geographic location, i.e. dummy variables for metropolitan municipalities with a population of over 200 000 inhabitants, suburban municipalities with a commuting population of more than 50 per cent of the nocturnal population and finally large cities with 50 000 to 200 000 inhabitants, to see if this will have any effect on our main result. Also added to the HOLK data is information on household real potential wage. Since potential wage is explained by age and education level, these variables are excluded from the model due to high correlation with the wage variable.

Table 1 gives some descriptive statistics at the respondent's age of 25 for those who have entered the housing market and haven't become owner occupier or a tenant-owner before the age of 25.

Table 1
Weighted sample means at the respondents age of 25.

Variables	Birth cohort 56	Birth cohort 64	Birth cohort 74
Single	0.34	0.41	0.38
Number of children	0.43	0.27	0.18
Student	0.10	0.17	0.35
Real potential wage tSEK/year	2.43	3.62	3.87
User cost	2.26	6.04	9.12
Metropolitan municipality	0.21	0.19	0.25
Grew up with single parent	0.04	0.09	0.11
Parents own their housing	0.64	0.72	0.86
Father-university degree	0.12	0.14	0.21
Father-self employed	0.07	0.09	0.09
N	487	441	506

Note: All variables except for the number of children, potential wage and user cost are dummy variables that take on value 0 or value 1.

¹⁰The fluctuations in the inflation rate, however, have been more intense during some time periods than we believe people's expectations to be. We will therefore use the arithmetic average of the inflation rate in year (t-1), (t-2), (t-3) and (t-4).

¹¹ Calculated by Marie Gartell (Institute for Future Studies) from the individual paneldata LINDA by a Mincer equation with age and age squared, for different cohorts and different education levels.

Figure 1 shows ownership rates (cumulative percent) as a function of age for the respondents. About 50 percent of the respondents in age 29 have sometime between ages 20-29 lived in an owner occupation or a tenant-owner cooperative. A comparison between the cohorts indicates, however, that the share of respondents in age 29 that have lived in a homeownership is slightly lower for the younger cohorts.

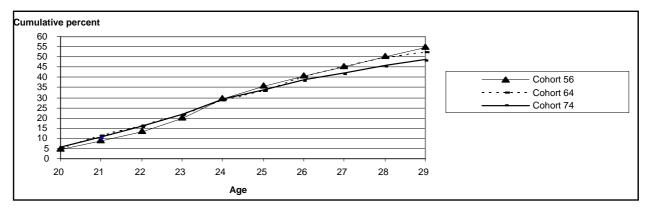


Fig.1. Distribution of ownership rates (cumulative percent), as a function of age.

Figure 2 provides details of the homeownership rates (cumulative percent) divided into owner occupancy and tenant-owner cooperatives as a function of age. The figure indicates that the tenant-owner cooperative has taken over the role as the main ownership alternative among young adults, i.e. a change in housing pattern is notable. Looking at the development of housing supply in Sweden, up until the Million Program in the 1960's, an expansion of tenant-owner cooperative apartments and rentals were seen. However, during the last quarter century the distribution of tenure forms has been quite stable (Bengtsson 2007:106).¹³

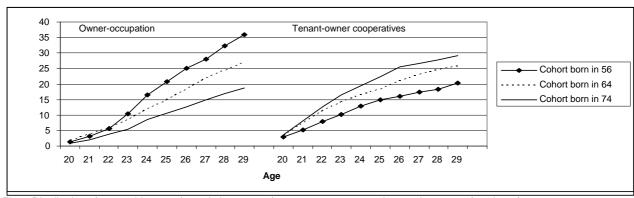


Fig.2. Distribution of ownership rates (cumulative percent), owner occupancy and coop share, as a function of age.

¹³Owner-occupancy represented 39 percent, coops 17 and rental housing 43 percent of the total housing supply in Sweden in year 2000. There is a slightly upward trend of tenant-owner cooperatives today which is contingent on reconstitution of rental apartments to housing cooperatives.

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¹²Note that the respondents are censored when buying an owner occupation or a tenant-owned cooperative so Figure 1 and Figure 2 should be interpreted as the share of respondents that during the age of 20-29 sometime have lived in a tenant-owned cooperative or an owner-occupied housing.

5. Empirical results

Table 2 presents the marginal effects of the tenure choice model with municipality dummies but without family wealth variables. Given the difficulty of interpreting coefficient estimates, estimates of the marginal effect of each variable are presented. Marginal effects are evaluated at the sample means or for dummy variables, at the discrete change from 0 to 1. A detailed result with coefficient estimates and standard errors are, however, presented in Table A1 in Appendix.

When comparing the estimated marginal effects of the different variables and cohorts we find that the most obvious differences in pattern of access to owner occupation concerns the demographic variables. For the choice of owner occupancy, for example, singles have a significantly lower propensity to buy owner occupancy. However, the marginal effect has decreased in size by 4 percentage points, from -0.059 to -0.020 for the youngest cohort. The marginal effect for having one child is positive and the estimated coefficient is significant. However, the pattern is the same also here; the marginal effect has decreased in size. Furthermore, it seems as it is the first child that is crucial for the choice of buying owner occupancy. Though we are not studying the mechanism behind this change in pattern one could speculate whether this is an effect from a change in life-style. The age of the studied individuals from the different cohorts are the same but, as presented in Table 1, in the data section, the youngest cohorts are to a larger extent students and live to a larger extent as singles and they also on average have fewer children, i.e. the younger cohorts seem to have postponed the family formation and also therefore live to a lesser extent in owner-occupancy. Looking at the outcome tenant-owner cooperative, it seems as this is a housing alternative mainly for spouses or cohabitants without children, i.e. households with two possible wage earners. Furthermore, the estimate of the potential wage is not significant for the outcome tenant-owner cooperative, indicating that this is a more short-sighted owner alternative.

The estimated coefficient of the user cost variable is negative and significant for most of the cohorts. For the outcome tenant-owner cooperative the pattern indicates that young adults have become more sensitive to changes in the user cost. We will comment on the estimates of the student dummy and the municipality dummies together with the result of the family wealth variables hereinafter.

Table 2
Marginal effects of the tenure choice model without family wealth variables

Marginal effects of the te	nure choice model without fai	· ·		
		2-1 Cohort 56	2-2 Cohort 64	2-3 Cohort 74
		Marginal Effect	Marginal Effect	Marginal Effect
1. Owner occupancy	single	-0.059***	-0.030***	-0.020***
	1-child	0.013***	0.017***	0.005*
	+1-child	0.022***	0.006	0.002
	female respondent	-0.000	0.004	0.003
	student	-0.012	-0.016***	-0.011***
	potential-wage	0.001**	0.003***	0.003***
	user cost	-0.002*	-0.000	-0.001
	municipality dummies	yes	yes	yes
2.Tenant-owner	single	-0.010**	-0.020***	-0.015***
cooperative	1-child	-0.013**	-0.018**	-0.029***
	+1-child	0.017**	-0.037***	-0.033**
	female respondent	-0.008	-0.002	-0.014**
	student	-0.010	-0.016**	-0.004
	potential-wage	-0.005	-0.001	-0.004
	user cost	-0.003*	-0.005***	-0.006***
	municipality dummies	yes	yes	yes

Note: Rental apartment is the base outcome. Age and education is excluded in the model because of high correlation with the variable potential wage, see the discussion in section 4 Data source and sample.

Table 3 presents the marginal effects of the family wealth variables: if the respondents' parents owned their housing (*p-own*), if the respondent grew up with a single parent (*s-parent*) and the father's socioeconomic status, i.e. university educated (*f-univ*), self-employed (*f-self-e*) or farmer (*f-farm*) ("worker" is the base category). A detailed result including all control variables with estimated coefficients and standard errors are presented in Table A2 in Appendix.

It is obvious that having parents who own their housing have become an important factor for buying a tenant-owned cooperative housing. The estimated coefficient has increased in importance; from not being significant (cohort 1956) to significant i.e. a marginal effect of 0.014 (cohort 1964) and 0.022 (cohort 1974), a significant increase by almost 1 percentage points. For the choice of owner occupancy the pattern is the opposite. Our result also indicates that having grown up with a single parent seems to have become a constraint for their children's tenure choice. The estimated coefficient of single parent is negative and significant (at the 10 percent level) for the youngest cohort and the outcome tenant-owner cooperative, a marginal effect of -0.015. Maybe the most conspicuous result is that the estimated coefficient of having a father with a university degree is significant and positive for the two youngest

^{*} Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

cohorts. This indicates that class affiliation has become important for the choice of buying a tenant-owned cooperative. Tenant-owner cooperative seems to have become a link in the housing career and a housing alternative essentially for resourced young adults without children.

Finally, some comments on the estimated coefficients of the student dummy and the municipality dummies: The estimated coefficient of being a student is significant and negative for the two latest cohorts and the outcome owner occupancy. However, since students may face a different housing situation—many of them move temporarily to study and have during that time little or no incentive to buy their housing—all equations have also been estimated excluding all students from the sample. This did not have any crucial effect on the estimated marginal effects and especially the estimated coefficients of the family wealth variables. Furthermore, since the only way to identify students in the data is by the study grant, there is a possibility that we have not been able to catch all students in the data. This could be especially crucial for the oldest cohort. The models have therefore also been estimated without controlling for students and this had no effect on the coefficient of the family wealth variables.

The municipality dummies were significant and negative for all cohorts and the outcome owner occupancy. For the outcome tenant-owner cooperative the estimated coefficients of the municipality dummies were positive and significant for the youngest cohorts. Furthermore, testing different controls for geographical and macro differences did not have any effect on the estimated coefficients of the family wealth variables, though the coefficients of, for example, the price index were significant only for the youngest cohort.

Table 3

Marginal effects of family wealth variables from the tenure choice model.

- Wargirian	0110010 01 10	3-1	3-2	3-3	3-4	3-5	3-6	3-7	3-8	3-9
		Cohort	Cohort	Cohort						
		1956	1964	1974	1956	1964	1974	1956	1964	1974
		Marginal effect	Margina I effect	Marginal effect	Marginal effect					
1 Ourse		eneci	enect	eneci	enect	eneci	enect	renect	eneci	eneci
1. Owner occupancy	p-own	0.008**	0.006	0.003	_	_	_	_	_	_
occupancy	p-own	0.000	0.000	0.003				_		
	sing-p	-	-	-	-0.011	-0.004	-0.003	-	-	-
	f-uni	_	_	_	_	_	_	0.001	-0.002	0.002
	1-uiii				_			0.001	-0.002	0.002
	f-self-e	-	-	-	-	-	-	0.005	-0.002	0.002
	f-farm	<u>-</u>	_	_	_	_	_	0.001	0.012	0.018***

2. Tenant										
owner coop.	p-own	0.002	0.014**	0.022***	-	-	-	-	-	-
	sing-p	_	-	-	0.014	-0.014	-0.015*	-	-	-
	0.									
	£							0.005	0.000***	0.045**
	f-univ	-	-	-	-	-	-	0.005	0.022***	0.015**
	f-self-e	-	-	-	-	-	=	0.008	-0.000	0.018
	f-farm	_						-0.013	-0.021	-0.004
	1-1aiiii]	-	-	-	-	-	-0.013	-U.UZ I	-0.004

Notes: Rental apartment is the base outcome.

^{*}Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 10% level.

The estimated coefficients of the control variables seem quite stable when introducing the family wealth variables, see table A1 and A2 in the Appendix. Furthermore, an important property of the multinomial logit model is the IIA assumption; see the discussion in section 3 about the tenure choice theory and methodology. The Hausman test, which tests the null hypothesis H₀: odds (outcome-J versus Outcome-K) are independent of other alternatives, have been used to test the IIA property (Hausman & McFadden 1984:1226). The null hypothesis cannot be rejected, supporting the use of the multinomial logit model.

6. Conclusion

In this study, the effect of parental wealth on young adult's tenure choice is estimated using data on self-reported housing careers from three birth cohorts. Earlier studies have shown that increased housing prices and housing costs together with a housing shortage have made young adult worse off on the housing market. When comparing the three birth cohorts in their age of 20-29 we find that parental wealth has a major impact on the youngest cohort's opportunity to buy their housing, i.e. parental wealth has increased in importance during time periods when young adult have faced increased problems in becoming established on the housing market. Young adults with parents who own their housing have a higher probability of becoming the owner of a tenant-owner apartment. The pattern is the same for the father's occupation, a well known class indicator. Furthermore: earlier research has shown that growing up with one parent, among other things, increases the risk for children of dropping out of school and out of work in their late teens. The result from this study indicates that this also has become a constraint on the housing market; having grown up with a single parent now seems to decrease the chances to buy a tenant-owned cooperative.¹⁴

To be able to provide equal opportunities to all citizens has been and is still viewed as desirable by many politicians and Sweden as a welfare state has been internationally unique with its strong and ambiguous housing policy. However, the Swedish housing policy has since the beginning of the 1990's been characterized by a dismantled housing policy with a decrease in housing subsidies and a retrenchment of the welfare state. The result of this study may indicate that this has increased the importance of family wealth and that housing opportunities may have become a matter of class affiliation.

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¹⁴However, the situation on the housing market with increasing house prices and housing costs has worsened after year 2003. Looking at the data and the result it seems as the youngest cohort has postponed its family formation. According to statistics Sweden the mean age of having the first child for women is 25.4 for cohort 56, 26.6 for cohort 64 and 26.8 for cohort 74 (the mean age for the youngest cohort will increase since some hasn't got their first baby yet). It would therefore be interesting to make a similar study with data that comprise at least the age of 35 of the individuals in all three cohorts to also be sure to catch the period of family formation for the youngest cohort. The estimated coefficient of having grown up with a single parent is negative and significant at ten percent level for the youngest cohort. An analysis of an extended time period would make it possible to more carefully follow the development of this variable.

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APPENDIX A

Table A1 Estimation results from a tenure choice model without family wealth variables

		2-1	2-2	2-3	
		(Cohort 1956)	(Cohort 1964)	(Cohort 1974)	
		Coef.	Coef.	Coef.	
		(Std. Err.)	(Std. Err.)	(Std. Err.)	
. Owner occupancy	Single	-2.177***	-1.355***	-1.971***	
· · · · · · · · · · · · · · · · · · ·	Gg.G	(0.260)	(0.273)	(0.384)	
		(0.200)	(0.210)	(0.001)	
	1-child	0.378***	0.600***	0.380*	
		(0.156)	(0.196)	(0.238)	
	+1-child	0.586***	0.219	0.134	
	orma	(0.208)	(0.273)	(0.298)	
		(5.25)	(5:=: 5)	(5.255)	
	female respondent	0.002	0.185	0.301	
		(0.136)	(0.175)	(0.202)	
	student	-0.556	-0.930***	-1.208***	
	Studolit	(0.573)	(0.342)	(0.281)	
		(0.570)	(0.072)	(0.201)	
	potential-wage	0.023**	0.153***	0.238***	
		(0.011)	(0.058)	(0.058)	
	user cost	-0.085*	-0.043	-0.042	
	430, 000.	(0.047)	(0.051)	(0.089)	
		(0.011)	(0.001)	(0.000)	
	municipality dummies	yes	yes	yes	
	constant	-2.123***	-2.985***	-3.219***	
	constant	(0.158)	(0.426)	(0.822)	
		(/	()	(,	
2. Tenant-owner coop.	Single	-0.444*	-0.615***	-0.432***	
rename owner coop.	Olligic	(0.240)	(0.199)	(0.171)	
		(0.240)	(0.100)	(0.171)	
	1-child	-0.531**	-0.614**	-1.106***	
		(0.268)	(0.312)	(0.415)	
	+1-child	-0.802**	-2.136***	-1.621**	
	+1-Cillia	(0.408)	(0.741)	(0.720)	
		(0.400)	(0.741)	(0.720)	
	female respondent	-0.280	-0.068	-0.346**	
	•	(0.176)	(0.174)	(0.157)	
	atudant	0.440	-0.530**	0.400	
	student	-0.446 (0.605)		-0.122	
		(0.605)	(0.250)	(0.156)	
	potential-wage	-0.178	-0.037	-0.093	
		(0.119)	(0.065)	(0.061)	
		0.407*	0.4.40***	0.400***	
	user cost	-0.107*	-0.142***	-0.168***	
		(0.058)	(0.049)	(0.063)	
	municipality dummies	yes	es	yes	
	constant	-2.369***	-1.876***	-1.944***	
	constant	(0,412)	(0.431)	(0.599)	

Notes: White's robust std. errors in parenthesis. Std. error adjusted for 711 clusters in model (1), 640 clusters in model (2) and 706 clusters in model (3). Rental apartment is the base outcome.

* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

Table A2
Estimated coefficients from a tenure choice model including family background variables

		3-1 Cohort 56	3-2 Cohort 64	3-3 Cohort 74	3-4 Cohort 56	3-5 Cohort 64	3-6 Cohort 74	3-7 Cohort 56	3-8 Cohort 64	3-9 Cohort 74
		Coef. (Std. Err.)								
1. Owner occupancy	single	-2.177*** (0.260)	-1.348*** (0.274)	-1.962*** (0.385)	-2.171*** (0.261)	-1.341*** (0.275)	-1.969*** (0.384)	-2.174*** (0.261)	-1.349*** (0.275)	-2.001*** (0.386)
	1-child	0.391*** (0.156)	0.611*** (0.196)	0.391* (0.239)	0.409*** (0.157)	0.599*** (0.196)	0.379 (0.239)	0.380*** (0.156)	0.590*** (0.198)	0.383 (0.240)
	+1-child	0.605*** (0.209)	0.267 (0.276)	0.150 (0.297)	0.586*** (0.208)	0.219 (0.273)	0.165 (0.295)	0.594*** (0.209)	0.190 (0.275)	0.100 (0.304)
	female-resp.	-0.003 (0.137)	0.183 (0.175)	0.304 (0.203)	0.002 (0.136)	0.179 (0.175)	0.307 (0.202)	0.003 (0.136)	0.187 (0.178)	0.319 (0.203)
	student	-0.566 (0.569)	-0.940*** (0.343)	-1.193*** (0.279)	-0.554 (0.572)	-0.935*** (0.343)	-1.201*** (0.280)	-0.549 (0.575)	-0.915*** (0.344)	-1.224*** (0.278)
	potential-wage	0.023** (0.011)	0.156*** (0.059)	0.236*** (0.059)	0.023** (0.011)	0.158*** (0.058)	0.238*** (0.059)	0.023** (0.011)	0.159*** (0.058)	0.233*** (0.059)
	user	-0.082* (0.047)	-0.042 (0.051)	-0.042 (0.090)	-0.084* (0.047)	-0.041 (0.051)	-0.041 (0.089)	-0.086* (0.047)	-0.040 (0.051)	-0.035 (0.090)
	municipality dummies	yes								
	p-own	0.293** (0.152)	0.294 (0.203)	0.389 (0.324)	-	-	-	-	-	-
	sing-p	-	-	-	-0.424 (0.349)	-0.233 (0.336)	-0362 (0.375)	-	-	-
	f-univ	-	-	-	-	-	-	0.055 (0.231)	-0.060 (0.301)	0.175 (0.262)
	f-self-e	-	-	-	-	-	-	0.179 (0.227)	-0.097 (0.282)	0.242 (0.319)
	f-farm	-	-	-	-	-	-	0.019 (0.257)	0.421 (0.320)	1.082*** (0.425)
	constant	-2.336*** (0.191)	-3.228*** (0.460)	-3.583*** (0.881)	-2.114*** (0.158)	-2.996*** (0.428)	-3.206*** (0.827)	-2.146*** (0.163)	-3.039*** (0.429)	-3.353*** (0.839)
Tenant- vner oop.	single	-0.447* (0.240)	-0.624*** (0.200)	-0.437*** (0.172)	-0.442* (0.239)	-0.599*** (0.201)	-0.434*** (0.172)	-0.422* (0.239)	-0.639*** (0.199)	-0.436*** (0.171)
	1-child	-0.527** (0.267)	-0.603** (0.312)	-1.108*** (0.416)	-0.579** (0.275)	-0.611** (0.312)	-1.108*** (0.416)	-0.537** (0.268)	-0.571* (0.311)	-1.109*** (0.415)
	+1-child	-0.797** (0.409)	-2.090*** (0.741)	-1.554** (0.729)	-0.808** (0.407)	-2.131*** (0.741)	-1.590** (0.719)	-0.783** (0.409)	-2.050*** (0.743)	-1.630** (0.722)
	female-resp.	-0.284 (0.178)	-0.078 (0.174)	-0.351** (0.158)	-0.273 (0.177)	-0.087 (0.175)	-0.363** (0.158)	-0.265 (0.178)	-0.004 (0.176)	-0.366** (0.160)
	student	-0.445 (0.605)	-0.550** (0.252)	-0.137 (0.155)	-0.449 (0.606)	-0.544** (0.251)	-0.129 (0.156)	-0.425 (0.605)	-0.599** (0.255)	-0.155 (0.157)
	potential-wage	-0.180 (0.119)	-0.039 (0.066)	-0.097 (0.062)	-0.174 (0.118)	-0.034 (0.066)	-0.095 (0.061)	-0.174 (0.119)	-0.037 (0.066)	-0.095 (0.062)
	user cost	-0.107* (0.058)	-0.140*** (0.050)	-0.167*** (0.064)	-0.108* (0.058)	-0.140*** (0.050)	-0.169*** (0.063)	-0.109* (0.058)	-0.150*** (0.049)	-0.171*** (0.063)
	municipality dummies	yes								
	p-own	0.065 (0.192)	0.440** (0.201)	0.754*** (0.280)	-	-	-	-	-	-
	sing-p	-	-	-	0.421 (0.384)	-0.479 (0.358)	-0.463* (0.274)	-	-	-
	f-univ	-	-	-	-	-	-	0.161 (0.249)	0.543*** (0.216)	0.354** (0.179)
	f-self-e	-	-	-	-	-	-	0.287 (0.298)	-0.003 (0.303)	0.396 (0.263)
	f-farm	-	-	-	-	-	-	-0.583 (0.391)	-0.866 (0.567)	-0.093 (0.524)
	constant	-2.407*** (0.430)	-2.217*** (0.462)	-1.631*** (0.659)	-2.396*** (0.412)	-1.854*** (0.434)	-1.642*** (0.655)	-2.370*** (0.416)	-1.903*** (0.443)	-0.994** (0.597)

Notes: White's robust std. errors in parenthesis. Std. error adjusted for 711 clusters in model (1), 640 clusters in model (2) and 706 clusters in model (3). Rental apartment is the base outcome.

* Significant at the 10% level. ** Significant at the 5% level. *** Significant at the 1% level.

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