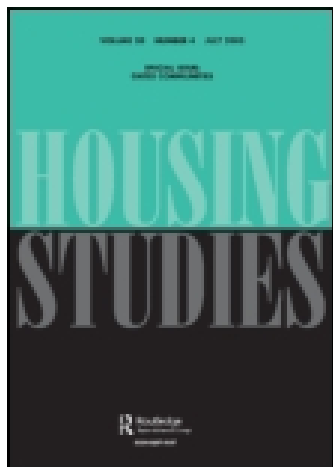


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### Residential Mobility Patterns of Elderly—Leaving the House for an Apartment

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# Residential Mobility Patterns of Elderly— Leaving the House for an Apartment

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**ABSTRACT** *One hypothesis is that, in Sweden, the elderly today are more willing to change residence to accommodate for changing lifestyles and poorer health than in earlier generations. If so, the elderly will change their type of tenure from owner occupation to tenant co-operative or rental housing, which includes more services for residents. The aim of this study is to discover if elderly people move to apartments after leaving single-family housing that they own. Mobility patterns of those born in the 1920s, 1930s and 1940s are analysed to identify characteristics of stayers and movers, and to determine to what extent the elderly move to rental and tenant co-operative apartments. The analysis is cross-sectional using a register database comprising the Swedish population. Moves were followed between 2001 and 2006. The majority remained in their current dwelling but almost one-quarter moved. Of those, a smaller number moved from owner-occupied housing to a tenant co-operative or rental apartment.*

**KEY WORDS:** Elderly, registered data, residential mobility, housing choice, housing tenure, Sweden

## Introduction

In many Western societies, the increasing proportion of elderly is of special concern for the future, and Sweden is no exception. One associated issue is the provision of housing for this group. It has been hypothesised that, in Sweden, the elderly will exchange single-family housing for an apartment. This assumption includes the concept that the elderly change tenure from owner-occupied single-family housing to tenant co-operative<sup>1</sup> or rental housing. Rental and tenant co-operative housing is typically associated with the provision of more services for residents. Although many elderly stay healthy for longer than those in previous generations (SOU, 2002, p. 29), this extended life span is accompanied by health problems that they would not have survived in earlier periods. These factors should influence the behaviour, preferences and needs of the elderly in the housing market, which emphasises the need for studies on the relationship between the demands of the elderly and the availability of suitable housing on the market.

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Traditionally, residential mobility rates among the elderly are low; the elderly remain in their current dwelling as long as possible and only a minority of this group moves (Long, 1992). The great majority live in independent housing: in Sweden, only 6 per cent of those over 65 years of age live in assisted housing (Larsson, 2006). However, the increase in the proportion of elderly within the overall population and discussion about lifestyle changes among the young old, in particular the baby boomers, raise questions about changing patterns of residential mobility (Kramer & Pfaffenbach, 2009). An increasing interest in residential mobility at an older age, from owner-occupied housing to an apartment, in Swedish municipalities has been identified (Abramsson & Niedomysl, 2008). However, these studies are principally qualitative and survey studies; quantitative tests are lacking to confirm such a trend.

Most elderly are well housed as regards space and standard, and their housing costs will increase in most cases rather than decrease if they move. Thus, it is most likely that a majority will remain where they are. However, higher levels of education and income generally increase the probability of moving (Clark & Dieleman, 1996). The baby boomers in particular have such characteristics. In addition, they have moved for study or labour market purposes earlier in life and have a higher divorce rate, which indicates a household break-up; thus, a subsequent move in old age may not be a great obstacle (Malmberg *et al.*, 2004). It is known that earlier moves increases the likelihood of moving again (DaVanzo, 1981; Mulder, 1993). As the elderly constitute an increasingly large proportion of the Swedish population (Andersson, 2004; SCB, 2010), their choice of housing will affect the general situation in the housing market.

In order to clarify the mobility patterns of the elderly, that is the extent to which they move and the housing choices they make with regard to tenure, in this study, the actions between 2001 and 2006 of Swedish cohorts born in the 1920s, 1930s and 1940s are studied. This is carried out using a register database comprising the total Swedish population. In addition, the characteristics of movers and stayers in each cohort are studied.

The study continues with a presentation of the aims and related research questions that prompted this study. The data, method and methodological considerations are described in the following section. Thereafter, the study is placed in a housing market context focusing also on mobility and the elderly before the studied cohorts are presented. The result section follows, in which the characteristics of the stayers and movers are described. In the final section, the results are discussed.

## Aims and Questions

The aims of this study are to examine the extent to which the elderly leave single-family owner occupied housing and move to rental and tenant co-operative apartments<sup>2</sup> and to characterise older stayers and movers as regards age, income, education level, country of birth and family situation.

Some major research questions were formulated as follows: What characterises elderly movers and stayers in general, and what are the different characteristics between those remaining in owner-occupied housing and those moving to rental or tenant co-operative apartments? By characterising movers and stayers, predictions of future mobility rates can be made. In addition, the effect of a change of certain characteristics, such as marital status, type of income and number of children at home, on the probability of moving and selecting a particular type of tenure was studied. Another set of questions is related to where the elderly

move, that is to accommodation of what type of tenure. To what extent do older people move from single-family owner-occupied housing to rental or tenant co-operative apartments and to what extent do they move to another house with the same type of tenure?

### **Data and Method**

To achieve the aim of this study, mobility of individuals born in the 1920s, 1930s and 1940s is followed between the years 2001 and 2006 using a register database. The main source for the analysis presented is the Geoswede database of the Institute for Housing and Urban Research at Uppsala University. The database includes all individuals that have lived in Sweden sometime between 1990 and 2006. It contains yearly, individual-level data from the Swedish population register combined with data on education, residence, employment, employers, country of birth, family relations and income. The data make it possible to characterise cohorts of elderly in order to describe the movements of a large and important group in Swedish society (see Appendix 1 for details on variables). Among the 11 variables used in the regressions, the strongest significant correlations were between tenure form and area of property (0.699) and tenure form and marital status (0.276), which was expected, but did not impede further analysis. The variables were also checked for interaction effects. Four variables, marital status, income from work, income from early retirement and children at home, were used as event variables, that is to check whether there was a change over time, namely, between 2001 and 2006.

The number of individuals who were born in 1920–1949 diminished naturally within the period of 2001–2006 as a result of deaths (595 507). In addition, the total sample was reduced by missing values for residence number (the largest reduction), house type, legal owner and east/north coordinates. These are variables that were all prerequisites for the study (in total, about 400 000 individuals had missing data). The statistical drop reflected the main population when the variables of age, sex and foreign birth were analysed.

Methodologically, apart from descriptive elements, this study includes models to test the outcome of moving or staying (logistic regression models). Thus, it is possible to identify characteristics of movers and stayers among all elderly in Sweden. In addition, sub-groups of those moving from home ownership to either another type of tenure (in practice, often an apartment) or another type of home ownership are analysed with a regression model.

A limitation of the chosen method is that movers' preferences and choices concerning moves (or, for that matter, the decision to stay) are not known. The study is limited to the indicators of their actions in the database as follows: payment of pension, death of a spouse, age, or children at home, among others. Despite this, the data offer a unique possibility for analysis. However, the actual reason(s) for a move might differ from these factors, such as adjusting to new ideals, circumstances, or a desire for something new.

An increase (or indeed decrease) in mobility among the elderly cannot be established as the study is limited to moves between 2001 and 2006. A longer time series of data is needed if we want to establish (or refute) such a trend. In this study, we concentrate on the questions of who, where from, and where to, as regards tenure forms.

### **Swedish Housing Market, Residential Mobility and the Elderly**

In Sweden, the public housing sector boomed during the 1960s and into the 1970s. Between 1951 and 1970, 42 per cent of new construction was municipal rental housing.

From 1945 until 2005, owner-occupied housing increased from 38 to 43 per cent of the housing market. The almost simultaneous building of rental multi-family housing and owner-occupied housing is seen as a paradox in Swedish housing history; the government strongly promoted municipal rental housing while households wanted and built owner-occupied housing (Almqvist, 2004). A special feature of Sweden's tenure structure is the tenant co-operative housing sector, which increased from 4 per cent in 1945 to 17 per cent of the housing market over the following 60 years. In Sweden, access to municipal rental housing is not in principle regulated by needs and income testing, although in practice, disadvantaged groups are over-represented in the sector. The security of tenure in renting is well protected in Sweden; rental contracts are for an unlimited period, in private as well as public rented dwellings. The presence of tenancy agreements for unlimited time, together with negotiated rents, makes the rental sector in Sweden particularly secure and attractive to all groups. The corporate rent-setting system (from 1968) forces private landlords to comply with this system, which is set by the public/municipal housing company according to criteria including quality and location, when they revise their rents (Andersson, 2008).

Although, ownership is the most preferred housing type in Sweden, other types of tenure are not considered inferior but convenient at different times in life (Andersson *et al.*, 2007). Studies from other countries verify this (James, 2008). Ostrovsky notes a higher transition rate, from single-family housing to apartments, among older Canadians than that for moves in the reverse direction. There is a shifting preference towards apartments, although not by large numbers of people (Ostrovsky, 2004). Swedish studies similarly indicate a growing interest among the elderly in moving to more comfortable housing involving less maintenance (Abramsson & Niedomysl, 2008). If this is true, we would expect to find older people leaving owner-occupied housing for housing that needs less maintenance, in other words, rental or cooperative housing, in this study.

Suburban housing suited for families with children may lose its attractiveness when children move out: the space is no longer needed and maintenance of the house and garden becomes strenuous. A wish to spend time and money on travelling and summer houses, among others, is also evident, as is the wish to move when still healthy and able (Abramsson & Niedomysl, 2008). If this is valid, we could expect to identify more frequent moves among the younger cohorts in general and moves from owner-occupied housing to other types of housing in this study.

Residential mobility varies along the course of life and the elderly move rarely compared with younger age groups (Abramsson *et al.*, 2000; Long, 1992; Lord & Luxembourg, 2007). One important exception is the increased residential mobility among widowed and divorced elderly. In a Canadian study, it was found that married people (+85 years) had a higher probability of living in a house-type dwelling than widowed and divorced (Richards & Rankaduwa, 2008). Unmarried older people belonged to an intermediate group of older people that, according to the authors, had the habit of coping and consequently were slightly more likely to live in house-type dwellings than the reference category of widowed and divorced (Richards & Rankaduwa, 2008). Marital status is an important factor in analyses of residential mobility according to several studies (Haan & Perks, 2008; Richards & Rankaduwa, 2008) and is as such included as a factor in our empirical analysis. This results in another assumption for this data, namely, that the probability of moving would be higher among those becoming widowed during the period of the study.

Some studies have depicted moves of the elderly from owner-occupied to rental housing as mainly a result of them being forced to move for health or economic reasons, in other words, they leave because they have to, not because they want to (Dieleman, 1995; Painter & Lee, 2009). One hypothesis would thus be that moves to rental apartments involving less maintenance are more frequent among the oldest of the studied population. Another aspect that has been presented is that of the elderly being over-housed as they remain in large housing after their children have moved out and the space is no longer needed. Households generally move into larger housing as the family is enlarged but are reluctant to downgrade as the family size shrinks (Clark & Deurloo, 2006). Accordingly, we could expect older people living in owner-occupied housing to stay put rather than move to rental or tenant co-operative housing, that is generally smaller and that the effect of children leaving the parental home should not to a large extent influence mobility rates.

Attachment to a place can be important for elderly for a number of reasons, not least as the area in which they have lived for a long time is well known to them. The place remains constant during times of change (DaVanzo, 1981; Parmelee & Lawton, 1990). However, one study indicates lower rates of place attachment among baby boomers who moved to different neighbourhoods during their years of family formation, as 'gentrifiers' or 'ordinary' city movers (Bonvalet & Ogg, 2007). As many in the Swedish baby boom cohort of the 1940s made similar moves for labour market reasons, this could also influence residential mobility rates in Sweden. The growing number of foreign-born elderly with a history of mobility and an assumed lower level of place attachment could also have an effect (Fischer & Malmberg, 2001). This factor has received little attention in terms of research in Sweden, but we have included the status of foreign-born elderly in this analysis to investigate this issue. In addition, more people have achieved the status of home owner; thus, the reasons for owning a house might now be more varied (Helderman *et al.*, 2004).

Living in rented accommodation makes households more prone to move. Similarly, individuals have a higher propensity to move the higher their educational level (Fischer & Malmberg, 2001). As such, another hypothesis to be tested in this study is that individuals with the aforementioned characteristics will be more prone to move. Higher educational levels can be expected to be found among the youngest cohort in this study. It is more likely, however, that those living in rented accommodation will generally be older, considering the studied population, as living in owner-occupied housing is more common among those born in the 1940s than in the older cohorts.

A more recently studied trend is moving from a situation with owner occupation to release capital, a kind of asset-based or property-based welfare (Andersson, 2008; Doling & Ronald, 2010). If income is reduced upon becoming a pensioner, a move to smaller accommodation in a tenant co-operative or rented accommodation will release capital. This is particularly true for elderly who own their house outright (without a mortgage), as a result of having lived for many years in the same house. A much discussed alternative to using the capital tied to the house is to use equity (the difference between the estimated price of the property and the mortgage) to support the pension income. Before the economic recession in 2008 in particular, banks marketed several products for releasing capital from housing equity. This procedure is probably more common in countries where the difference in salary and old age pension is higher, with a marked fall in household income upon retirement (Andersson, 2008). In this study, the empirical analysis includes the sum of capital income as an indicator of financial resources.



In an international perspective, Swedish pensioners are comparatively well off, and poverty and income inequality among older people are low (Förster & Pellizzari, 2000), although the latter has increased in recent years. This is a result of capital income having become more important to the economic situation of older people, which is more unequally distributed than pension income (Gustafsson *et al.*, 2009). Among Swedes older than 65 years, only 14 per cent had less than 60 per cent of the median income in 2006 (Zaidi *et al.*, 2006).

The majority of people aged over 55 own and live in their own homes; among those born in the 1940s, the figure is 66 per cent. Only among the very old, those aged over 80, is rental tenure more common than owner occupation (Larsson, 2006). During recent years, there has been a growing interest in new housing concepts aimed at older age groups, such as senior housing. These are mainly tenant co-operative and rental apartments (Paulsson, 2008). If these apartments increase in number, mobility rates may increase among older people. This type of housing is, however, registered as ordinary housing and, in the data used in this study, it is not possible to specifically identify moves to senior housing.

The previous research findings and associated hypotheses presented above are to some extent contradictory. As such, we hope that this study will clarify the actual mobility patterns and characteristics of stayers and movers in a Swedish context.

### The Cohorts and their Housing

In this section, first, the statistics describing the chosen cohorts in 2001 and 2006 and their housing situation are presented. The sample size for both 2001 and 2006 is 2 220 121 individuals, and is adjusted to follow the very same individuals over time. The ages of the chosen cohorts born between 1920 and 1949 range from 52 years of age to 81 in 2001. The same individuals were in 2006 between 57 and 86 years old. This age gap makes it important to carry out separate estimates for people born in the 1920s, 1930s and 1940s as their conduct may differ as regards mobility.

Those born in the 1940s are by far the largest group, constituting almost half the sample (see Table 1). The fact that this group is large has been the focus of many debates in Sweden, not only concerning housing, but also pensions, healthcare and labour market issues. The smallest group in 2006 is the oldest (86 years old). Those born in 1946 (60 years) constitute the largest group followed by those born in the years 1945 and 1947–1949.

In 2001, the dominant type of tenure among the elderly was owner-occupied single-family housing, which constituted 60 per cent (see total in column of owner occupation in Table 2). In Sweden, almost all single-family housing is owner-occupied and the apartments are rental (private or public) or tenant co-operatives, that is there is a strong association between tenure type and housing type. When looking at the three cohorts

**Table 1.** Frequency and proportions for the three cohorts in 2001 and 2006

	Frequency	Per cent
1920	463 260	21
1930	676 428	30
1940	1 080 433	49
Total	2 220 121	100

**Table 2.** Tenures among studied cohorts in 2001

	Owner occupation	Tenant co-operative	Municipal rental	Private rental	Single family other	Total
1920	222 661	102 099	67 501	67 214	3 785	463 260
	48	22	15	14	1	100
1930	411 480	113 596	75 271	71 847	4 234	676 428
	61	17	11	10	1	100
1940	700 726	149 530	108 934	113 661	7 582	1 080 433
	65	14	10	10	1	100
Total	1 334 867	365 225	251 706	252 722	15 601	2 220 121
	60	17	11	11	1	100



**Table 3.** Tenures among studied cohorts in 2006

	Owner occupation	Tenant co-operative	Municipal rental	Private rental	Single family other	Total
1920	184 999	117 194	83 089	73 545	4433	463 260
	40	25	18	16	1	100
1930	371 798	138 569	85 607	76 007	4447	676 428
	55	20	13	11	1	100
1940	676 807	179 872	110 248	107 220	6286	1 080 433
	63	17	10	10	0	100
Total	1 233 604	435 635	278 944	256 772	15 166	2 220 121
	56	20	12	11	1	100

separately, owner occupation was the dominant form of tenure for all cohorts. Compared with the Swedish population in general, the 1940s cohort shows a high level of owner occupation. The average for all Swedes in 2005 was 43 per cent (Andersson, 2007, p. 232).

Five years later, in 2006, the situation had changed slightly. Owner occupation still dominated, but had diminished in favour of tenant co-operative housing (apartments), the rate for which increased about 3 per cent in 5 years (Table 3). The majority of tenant co-operative housing is multi-family dwellings. Interestingly, the 1940s cohort had a small decrease for owner occupation while the 1920s and 1930s cohorts showed marked decreases of their shares. A larger share actually moved but the above mentioned changes only refer to those *changing* their type of tenure and not those moving *within* the same type of tenure, as those are not included here. For the actual mobility patterns, we studied the change of peoples' location of residence, in the data presented as associated geographical coordinates, as shown in 'Results' section.

Potentially, the number of elderly in owner-occupied accommodation moving somewhere else can be large. There were 1 233 604 people in 2006 in owner-occupied housing, which equals 56 per cent of the chosen cohorts (see total count of people in owner occupation, Table 3). Next, their characteristics and residential mobility patterns between 2001 and 2006 are analysed.

## Results

A majority of the cohorts remained in their current housing but almost one-quarter moved in the period of 2001–2006. In the following section, we describe analysis of the cohorts according to the first set of questions that concern the characteristics of the movers as opposed to those of the stayers.

### *Movers and Stayers—Who are they?*

Compared with the minor movements between types of housing tenure described above, a far larger proportion of 23 per cent of the elderly changed dwelling between 2001 and 2006 (Table 4). However, it should be noted that the majority of the elderly, 77 per cent, stayed in the same dwelling between 2001 and 2006.<sup>3</sup>

A first analysis shows that people born in the 1940s moved more often than those born in the 1920s and 1930s. However, the differences in proportions that moved are small (less than 2 per cent).<sup>4</sup> This could be explained in that the youngest were adjusting to their future as pensioners. This will be explored further below.

In Table 5, the studied population is divided into movers and stayers. Movers in 2001 are those who moved at some point between 2001 and 2006, that is the table shows tenure

**Table 4.** Moves between 2001 and 2006 among elderly

	Frequency	Per cent
Stayers	1 705 483	77
Movers	514 638	23
Total	2 220 121	100

Table 5. Stayers and movers in their respective housing tenures in 2001 and 2006

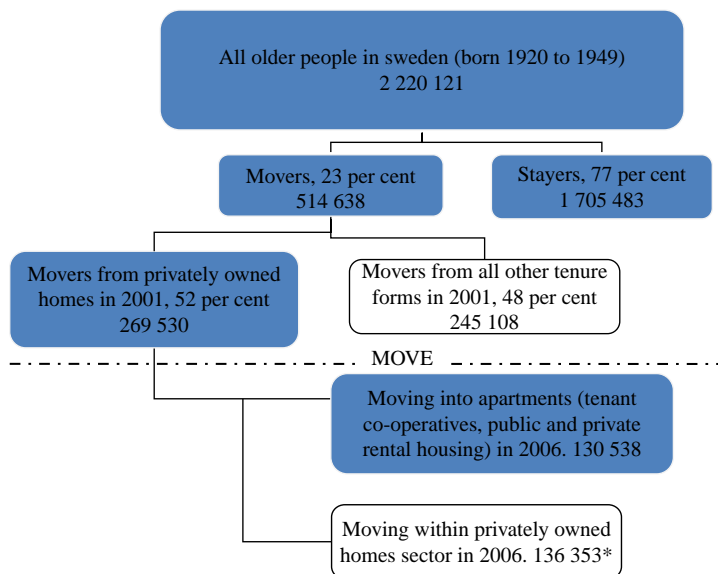
	2001			2006		
	Stayers <sup>a</sup>	Movers	Total	Stayers	Movers	Total
Owner occupation	1 065 337	269 530	1 334 867	1 058 334	175 270	1 233 604
Count	62	52	60	62	34	56
Percentage of all stayers/movers						
Tenant co-operative housing	275 974	89 251	365 225	296 714	138 921	435 635
Count	16	17	17	17	27	20
Percentage of all stayers/movers						
Public rental housing	175 969	75 737	251 706	175 629	103 315	278 944
Count	10	15	11	10	20	12
Percentage of all stayers/movers						
Private rental housing	178 192	74 530	252 722	164 483	92 289	256 772
Count	10	14	11	10	18	11
Percentage of all stayers/movers						
Other single-family homes	10 011	5 590	15 601	10 323	4 843	15 166
Count	0	1	1	1	1	1
Percentage of all stayers/movers						
Total	1 705 483	514 638	2 220 121	1 705 483	514 638	2 220 121

<sup>a</sup>The number of stayers shifted somewhat between tenures (42 000 individuals) in the population of stayers 2001–2006 due to the criteria of moves, that is changing north–east coordinates 100 × 100 m and the selling of rented apartments to form tenant co-operatives. The shift of tenure for individuals within the same 100 × 100 m was not considered a move in this study, neither did it affect the results of the total population.

before the move. For the year 2006, we can observe the distribution of movers in terms of tenure after the move. Among the movers in 2001, the largest group resided in owner-occupied housing (52 per cent; Table 5). After the move, a small majority remained in owner-occupied housing, but notably 130 538 (48 per cent) of the movers from owner-occupied housing had left for other types of tenure (see Figure 1). What type of tenure did they move to? The total distribution of the group of movers had changed in favour of tenant co-operative housing as well as municipal and private rental housing. The movers changed their housing situation in the expected direction, that is from owner-occupied to apartment, tenant co-operative, or rental accommodation (see Table 5).

In the section above, the number of movers and tenure type of movers are described, but who are the movers compared with the stayers? Logistic regressions were performed to further explore the characteristics of the migrating elderly. We included the variables discussed above that we assume affect the outcome of whether an older person moves or stays. Consequently, the dependent variable to be explained in the logistic regression equation is whether elderly in our population, from the total population of 2 220 121 individuals, moved or stayed between 2001 and 2006. For example, the variables of gender, being born abroad, cohort, tenure, education level and area of property, as well as sum of capital income, change as regard children at home, change in income from work, change in early retirement income and not least the change in marital status (becoming a widow/widower or divorced) may influence the propensity to move (the measured event in these last four variables). The result is expressed in estimates of odds ratios for moving or staying ( $\exp(B)$  = estimated odds ratio).

Most interestingly, significant results were shown for tenure. The probability of moving was higher for all other types of tenure than for owner occupation, as shown in Table 6; the probability of moving was lowest for people in owner-occupied accommodation.



**Figure 1.** Sample selections. Analysed populations in bold. (Notes: \*2639 unselected. Living in housing owned by municipality, county, state or other).

Table 6. Probability of moving for elderly ( $n = 2\,220\,121$ )

	Variables in the equation	Sig. .994	Exp(B)
<i>Sex</i>	Male	0.068	
<i>Cohort</i>	Cohort (1930)	0.000	10.049
	Cohort (1940)	0.000	1.115
<i>Ref. cohort 1920</i>			
<i>Country of birth</i>	Foreign born	0.000	1.102
<i>Ref. Swedish</i>	Tenant co-operative housing 2001	0.000	1.227
<i>Tenure</i>	Municipal rental housing 2001	0.000	1.617
<i>Ref. private homes</i>	Private rental housing 2001	0.000	1.596
	Other housing 2001	0.000	2.508
<i>Educational level</i>	Compulsory Education, 2001	0.000	10.097
<i>Ref. non-completed compulsory</i>	Upper secondary school, 2001	0.000	10.098
	University or University College < 2 years, 2001	0.000	1.152
	University or University College $\geq$ 2 years, 2001	0.000	1.132
	PhD programmes, 2001	0.000	1.102
<i>Area of property</i>	Property area 2001, < 900 m <sup>2</sup>	0.000	.840
<i>Ref. no area of property</i>	Property area 2001, > 900 m <sup>2</sup>	0.000	.846
<i>Income from work</i>	Change in income from work (between classes)	0.000	10.057
<i>Ref. no change in income from work</i>			
<i>Marital status</i>	Change in marital status (widowed/divorced)	0.000	2.353
<i>Ref. no change in marital status</i>			
<i>Early retirement</i>	Change in early retirement	0.000	1.168
<i>Ref. no change in early retirement</i>			
<i>Children home</i>	Change in children home	0.000	1.247
<i>No change in children home</i>			
<i>Capital income 2006</i>	Sum of capital income 2006 – 899 to 3299	.327	10.004
<i>Ref. &lt; –900 SEK</i>	Sum of capital income 2006 > 3300	0.000	10.078

Note: Nagelkerke  $R^2 = 3.6$  per cent.

This result was tested for tenure in 2001. It is still a fact that over 50 per cent of the elderly stayed in owner-occupied accommodation. As regards the actual figures, the potential movers from this sector, and the actual movers were numerous and of interest. In addition, the result is comparable to the pattern of residential mobility among Swedes in general found in an earlier study (Fransson & Borgegård, 2002).

As for change in income from work between 2001 and 2006, the variable is associated with a somewhat higher probability of moving. There was higher residential mobility among those who had left paid work (11 per cent), and among those whose income had been reduced (19 per cent). This was also shown by the variable change in early retirement in our study. In the model, there was a higher probability of moving for individuals with a change in early retirement income (odds ratio: 1.168, Table 6). The change consisted of 5 per cent receiving early retirement income and 4 per cent losing this type of income.

Those with positive capital income moved more than the reference category with negative capital income. Negative capital income indicates various debts, including mortgages. This might indicate that people had already sold their house and moved during the period, thus showing a positive capital income in 2006. However, a large sum of capital income is not exclusively from housing capital.

A variable concerning education that was divided into six levels was tested (see Appendix 1 of all variables for levels of education). There was a tendency for a higher probability of moving among individuals with higher education levels, which corresponded to findings in earlier research (Abramsson *et al.*, 2000).

Children moving out increased the probability of moving, as determined by the logistic regressions, 12 per cent of the individuals had one or several nestleavers (Appendix 1). This result seems reasonable, since households having children at home need more space and are presumably still in a family-oriented life phase, involving proximity to their children's school, friends and habitual environment. Children moving out will therefore mean a new phase in life for the household, which increases the likelihood of moving by almost 25 per cent.

Whether an individual was born in Sweden or abroad was significant for the probability of moving. Being born abroad increased the probability of moving whereas being born in Sweden decreased the probability. This result is in accordance with findings in previous research where earlier moves led to more moves in the future by individuals (Fischer & Malmberg, 2001). Men had a similar (but slightly lower) probability of moving than women in our population. This was also found in earlier studies in Sweden (SCB, 2008). Concerning the three cohorts, those born in the 1940s had the highest probability of moving, followed by those born during the 1930s, who had a higher probability of moving than those born during the 1920s according to this analysis.

The effect of the area of the property or, differently put, the size of the gardens of elderly did not conform to the expectations. The elderly with large gardens were expected to have a higher probability of moving than those with a small or no garden at all. Our model instead showed that those who had a garden in 2001 stayed on to a higher degree than those without. This could be because a garden was not seen as a burden in old age or that our sample also includes many young olds. This result refutes the assumption that a garden is a reason for elderly people to move (Table 6).

The most important variables in the model were change in marital status, type of tenure and change in having children at home. The importance of variables was measured as their size of change in the  $-2 \log$  likelihood of the model. As for the variable of marital status,

results from the logistic regression were as expected. A change in the marital status equals the loss of a partner, either through divorce or death, so a corresponding adjustment of the housing situation is expected (Table 6).

The second most important variable<sup>5</sup> for the probability of moving was type of tenure in 2001. In most test models including tenure, this was also the case. The reason for this is a matter for debate. Type of tenure may be an important factor for the elderly in deciding whether they will move or not, as they may be considering maintenance in their old age. However, these models were not limited to only home owners, but rather all elderly. It is more likely that this finding is a reflection of something else. Firstly, tenures are highly segmented in Swedish cities. Moving in order to change housing situation most often includes a change of type of tenure to enter another type of residential area. The importance of tenure might therefore indicate that this variable is a proxy that actually effects the importance of moves into different neighbourhoods and types of housing. To explore the importance of type of tenure, a regression model without it was tested. It showed no difference in the odds ratios for the variables in the equation compared to that in the earlier model in Table 6.

#### *Elderly Moving From Single-Family Housing to an Apartment*

In order to approach the hypothesis of the elderly leaving owner-occupied single-family housing for apartments, several steps of selecting individuals were made (see Figure 1). From the total population of people born in 1920–1949, those who moved between 2001 and 2006 were selected, which constituted 23 per cent of the total sample. Next, individuals moving *from* owner-occupied housing into accommodation with other types of tenure were selected (130 538 individuals). The three other types of tenure were as follows: tenant co-operative housing, into which 50 per cent of previous homeowners chose to move, municipal rental housing (24 per cent) and private rental housing for 26 per cent of previous homeowners. The choice of tenant co-operative housing for half of these movers can be explained. Firstly, when selling a property, tax regulations encourage another immediate housing investment (if the surplus is invested in housing within 1 year, full tax does not have to be paid). Secondly, many see tenant co-operative housing as an investment, and thirdly, when moving from owner-occupied accommodation, the situation of owning again may offer equivalent independence and a degree of freedom (but with the drawbacks of maintenance in old age) (Andersson, 2008). All three alternatives (tenant co-operative, public and private rental housing) most often mean living in an apartment in multifamily housing, but there are exceptions in these types of tenure, such as semi-detached row housing.

To maintain a point of reference, individuals moving *within* the category of owner-occupied accommodation were included, that is 136 353 persons (2639 were excluded owing to types of ownership other than private, that is state, municipality, county, church, or company). With regard to house type, this means that individuals moving from a single-family house to another remain in our analysis, giving a total of 266 891 individuals.

Lower marriage rates for movers from single-family homes to apartments are reasonable considering their higher age; the number of those who are widowed is higher (Table 7). Among those moving to an apartment, the number of widowed persons is almost three times higher than in the group moving from one single-family house to another.



**Table 7.** Marital status in 2006 for movers from owner occupation to apartments and for movers within owner occupation

		Frequency	Per cent
<i>Marital status 2006, house to apartment movers</i>			
Valid	1 Married	70 522	54
	2 Widowed	31 331	24
	3 Unmarried	6367	5
	4 Divorced	22 293	17
	Partnerships, other	25	0
	Total	130 538	100
<i>Marital status 2006, house to house movers</i>			
Valid	1 Married	94 407	69
	2 Widowed	13 828	10
	3 Unmarried	9350	7
	4 Divorced	18 744	14
	Partnerships, other	24	0
	Total	136 353	100

Being a widow/widower can be the reason for a move to an apartment and could be preferred because of size, price and provision of services.

Notably, variables measuring changes showed a higher share of events/changes for this sample of movers from owner-occupied housing than for the total population (see Appendix 1). For instance, the proportions of widowed and divorced were 7 per cent and 3 per cent between 2001 and 2006, respectively (compared with 4 per cent and 1 per cent). The change in income from work showed that 20 per cent left paid work and another 12 per cent had a reduced income, which might indicate part-time work. Moves related to a change in children at home as well as early retirement showed more movers from owner-occupied accommodation than the total population. More life-events of this sample are of course due to the fact that they are movers and we observe the importance of so-called triggering events for residential moves.

Furthermore, we constructed a logistic regression model measuring the likelihood of single-family home owners moving to another single-family home or to an apartment between 2001 and 2006 ( $n = 266\,891$ ). The same variables as in the former regression analysis were used with the exceptions of type of tenure, as this was now the dependent variable, and area of property. The result is expressed in estimates of odds ratios for moving to another single-family house (0) or to an apartment (1).

For most variables of characteristics of movers from owner-occupied accommodation to (rental or co-operative) apartments (Table 8), the results resemble those for movers in general, as shown in the regression results in Table 6. However, there are some differences that will be presented in the following section. It has to be remembered that the samples differ in that the first regression (Table 6) includes movers and stayers in all types of tenure and the second regression (Table 8) includes movers from owner-occupied accommodation only.

Men have a lower likelihood than women of moving to an apartment when moving from owner-occupied accommodation. The result from the regression with the probability of moving or staying in general also shows that men had a somewhat lower likelihood of

Table 8. Probability of elderly moving from owner occupation to an apartment ( $n = 266\ 891$ )

	Variables in the equation	Sig.	Exp(B)
Sex	Male	0.000	.747
Cohort	Cohort (1930)	0.000	.699
Ref. cohort 1920	Cohort (1940)	0.000	.428
Country of birth	Foreign born	0.000	1.261
Ref. Swedish			
Educational level	Compulsory Education, 2001	0.000	1.113
Ref. non-completed compulsory	Upper secondary school, 2001	0.000	1.115
	University or University College < 2 years, 2001	0.000	1.211
	University or University College $\geq$ 2 years, 2001	0.000	1.162
	PhD programmes, 2001	0.000	1.336
Income from work			
Ref. no change in income from work	Change in income from work (between classes)	0.000	.816
Marital status	Change in marital status(widowed/divorced)	0.000	2.337
Ref. no change in marital status			
Early retirement	Change in early retirement	0.000	1.152
Ref. no change in early retirement			
Children home	Change in children home	.474	10.009
Ref. no change in children home			
Capital income 2006	Sum of capital income 2006 – 899 to 3299	0.000	20.082
Ref. < – 900 SEK	Sum of capital income 2006 > 3300	0.000	1.862

moving than women. With the restriction to one type of tenure only in the second regression, this result is strengthened: women have an even higher likelihood. One reasonable explanation for this is that women often survive their men and thus are left to adjust their housing as widows. In general, women are less able to take care of maintenance and the economic burden of a house owing to their poorer economic circumstances.

The probability of moving to an apartment is higher for the oldest cohorts (Table 8) and lowest for those born in the 1940s. Comparing those moving to an apartment with those moving to another owner-occupied house, the former group was shown to be older (70 years old in 2006) than the latter (66 years old in 2006). This result is interesting in relation to all movers because among movers from all tenures, the probability of moving is higher among those born in the 1940s (Table 6). If we interpret these results, it seems reasonable that the oldest have a higher likelihood of moving from a house to an apartment despite the fact that those born in the 1940s have a higher overall likelihood of moving, as expected. The former could be a result of increasing health/maintenance problems and the latter possibly value-driven. Considering their total share of the population (Table 1), those born in the 1920s (+6 per cent) and the 1930s (+4 per cent) were overrepresented among movers from single-family housing to apartments. The 1940s cohort was underrepresented (−9 per cent). The oldest cohort moved from owner-occupied accommodation to an apartment to a larger extent, but those born in the 1940s were more frequent movers.

There was a decreased likelihood of moving to an apartment if an older person had a change in income from work and an increased likelihood of moving if they had a change in early retirement. If interpreted in line with earlier research, the latter is a sign of adaptation to a new phase and/or new circumstances in life. This corresponds to the literature in which it has been stated that elderly no longer working (income) or retiring early are expected to have an increased likelihood of moving.

However, the elderly leaving a house for an apartment had a higher average sum of capital income in 2006, possibly partly resulting from selling their house. This indicates a release of capital that might be connected to the selling of the house. However, this is only one suggestion for the reason behind the result; nevertheless, it is a much discussed issue in housing research (Doling & Ronald, 2010; Toussaint & Elsinga, 2009). The probability of an individual moving to an apartment is twice as high for those with a capital income than for those with no capital income (debts).

A change in marital status led to a higher probability of moving to an apartment; those concerned are widowed and divorced. This is the same result as for the probability of moving for all elderly. It could be expected that being left alone in a house after a partner's death or a divorce increases the likelihood of moving (Table 6). Slightly, surprising is the low increase in the likelihood of moving when children have moved out (Table 8; level of significance is a minor problem since this is not a sample). The result differs from that of the total population moving or not moving (Table 6): 15 per cent still had a child under the age of 18 at home in 2006. Overall, the variables demonstrating the greatest importance in the model in terms of change in log likelihood were as follows, in descending order: sum of capital income, cohort, marital status and gender.

## Discussion

The aim of this study was to investigate to what extent the elderly who moved from single-family owner-occupied housing moved to apartments, either rented or co-operative.

Questions were then raised in order to identify the mobility patterns of older individuals—here the total cohorts born in the 1920s, 1930s and 1940s—in regard to what characterised the stayers and movers. As elderly constitute a growing proportion of the population, their actions in the housing market will influence planning issues to an increasingly large extent. To be able to provide suitable housing, more knowledge is needed about the actions of the elderly in the housing market. This study aims to increase such knowledge. The elderly are over-represented in owner-occupied housing since a majority of the studied population, 60 per cent, live in owner-occupied housing, compared with 43 per cent of the total Swedish population. Considering the practical burden of such housing as regards maintenance and gardening, among other factors, it can be assumed that, particularly for the older individuals, there is a preference to exchange owner-occupied housing for more comfortable housing in rental or tenant co-operative housing.

The study concludes that almost one-quarter of the population studied moved between the two years 2001 and 2006. A small majority of the movers, 52 per cent, left an owner occupied single-family home when moving. That is almost 6 per cent of the total population left an owner occupied single-family home to move to an apartment.

The study shows that, with regard to movers *from* owner occupation, there is a cohort difference in that a larger share of those born in the 1920s and 1930s moved to an apartment (rental or tenant co-operative), whereas a smaller share of those born in the 1940s made such a move. This is in line with earlier research that has shown an increasing preference for apartments, in particular among older people. Although, the reasons for such moves cannot be identified in this study, it is expected that these moves are from high-maintenance housing to ease the burden with ageing and possibly with the experience of poorer health.

When moving from an owner-occupied single-family house, women had a higher likelihood of moving to an apartment than into another owner-occupied house. The financial situation of women is less secure than that of men and they generally have smaller pensions, which makes it more difficult for them to maintain a house if left alone. Women often survive their husbands and thus are left alone as widows. The change of marital status, that is becoming a widow/widower or divorced during the period of study, was shown to increase the probability of moving, which can be assumed to involve an adjustment of housing to fit a new situation in life.

Even though the older cohorts are more prone to move from single-family housing to apartments, total mobility rates in numbers were higher among those born in the 1940s. In addition, when looking at the total population of elderly (first model), those born in the 1940s had a higher likelihood of moving. Further studies are needed to determine the extent to which this takes place among this cohort compared with other cohorts during the same period of life. Still, the mobility among the youngest cohort suggests that this could be an adjustment during or in preparation for retirement or a life without children living at home. This may also indicate a lower level of place attachment, which is in line with recent research in other countries. It was evident that having children moving out was a trigger to move in general, that is it can be assumed that when the children move out, the housing situation is adjusted in regard to housing type and geographical location.

The probability of moving is lower among home owners than among tenants in this study. This can be explained by greater place attachment and the fact that leaving rental tenure is more readily done as opposed to selling a house that has to go on the market. In addition, home owners with no or little mortgage have low housing costs.

Higher education levels increases mobility rates as does place of birth when born outside Sweden. In future, increasing mobility rates can be expected as education levels as well as immigration has increased among the younger cohorts.

Those moving from owner-occupied housing to an apartment moved into tenant co-operative housing (50 per cent), and into public and private rental housing (25 per cent into each). As most of the movers sold their house, they were left with capital income that could be invested in a tenant co-operative apartment, whereas others may have wanted to forgo owning outright to live under rental tenure to ease the burden of maintenance, and possibly wished to spend time and money on other things. Moreover, the indicators of financial/economic changes did not show the greatest importance in our models (income from work and early retirement). This result mirrors the idea of the Swedish pensioners as relatively well off. Changes in financial situation alone were not crucial in triggering residential moves.

The great majority of those in the three cohorts did not move at all, but almost one-quarter of the population did, a total of over half a million people. Further studies are needed to identify increasing (or decreasing) mobility rates over time among the elderly, as this could not be determined in this study.

Further studies are also needed to establish if there is a tendency towards centralised residential patterns in geographical terms. The increase in the construction of senior housing in Sweden that has taken place during the 2000s could influence mobility patterns of elderly, but they are still being built in numbers that are too small to be statistically visible on a national scale. Studies covering a longer or a comparable time period are needed to establish a possible increase in the number of moves.

In conclusion, knowledge of the Swedish population together with these mobility-driving characteristics indicates higher future residential mobility among the elderly. If the characteristics of the movers from single-family housing to apartments—such as higher divorce rate, higher education, foreign-born and generating capital income from the sale of a house—are represented to a larger extent among younger cohorts, then we can expect more such moves in the years to come provided that the type of housing in demand is available. To meet this demand, the Swedish housing market and the municipalities that are to cater for all people's housing needs, need to respond to these changes. Such a response can to some extent be seen in the construction of senior housing, small single-family homes, as well as the more recent extra shelter housing aimed at older people feeling alone and insecure in their homes. By paying attention to demographic changes and the implications of such changes actors on the housing market could be better prepared to meet the housing demands of different groups. In particular, attention needs to be paid to low income households, often women living on their own, as their options are more limited than that of other groups.

## Notes

- <sup>1</sup> A tenant co-operative apartment is bought and sold on the regular housing market, but in addition, rent is paid monthly and the new owner has to be approved by the board of the tenant co-operative.
- <sup>2</sup> In Sweden, there is a strong association between tenure type and housing type, that is single-family housing is almost exclusively owner-occupied whereas apartments almost exclusively are found in rental or tenant co-operative housing.
- <sup>3</sup> Stayers still lived in the same 100 × 100 m region.

<sup>4</sup> It should be noted that some individuals moved several times during the five years between 2001 and 2006.

<sup>5</sup> That is considering power to change  $-2 \log$  likelihood.

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Appendix 1. Variables, 2001 and 2006

2001	2006	Description
ID no.		Database ID number
Year of birth		1920–1949
Sex		1 = man, 2 = woman
Country of birth		Foreign born = 1, born in Sweden = 2
Cohort		Cohort 1920, 1930 and 1940
East square		East coordinate, 100 m
100 × 100 m_01	East square	
100 × 100 m_06	100 × 100 m_06	
North square		North coordinate, 100 m
100 × 100 m_01	100 × 100 m_06	
Income from work_06	Income from work_06	Sum of income (hundreds SEK)
Change in income	Change in income	A change in income-class 2001–2006, 32 per cent in total population (35 per cent for sample leaving owner occupation)
Early retirement_06	Early retire-ment_06	Sum of income from early retirement/sickness benefit
Change in early retirement	Change in early retirement	A change in early retirement 2001–2006, 9 per cent in total population (9 per cent for sample leaving owner occupation)
Sum of capital income_06	Sum of capital income_06	Sum of capital income in three categories; debts (mortgage), no particular debts/resources and resources.
Educational level	Sun2000Niva_06	Level of education
		Born in Sweden or abroad
		Class 1, 2 and 3, where class 1 have 0 income, class 2 have >0–200 000 and class 3 above 200 000 SEK
		Lower income (from class 3 to 2) = 19 per cent, change from income to no income = 11 per cent in total population (12 per cent and 20 per cent, respectively, for sample leaving owner occupation)
		Dummy; where 1 = no early retirement and 2 = early retirement
		Starting early retirement 5 per cent, leaving early retirement 4 per cent in total population. (5 per cent and 4 per cent, respectively, for sample leaving owner occupation)
		Category 1 = till–900 SEK, 2 = –899 to 3299 SEK and 3 = more than 3300 SEK
		0 = Non-completed compulsory, 1 = compulsory education less than 9 years, 2 = compulsory education 9 (10) years, 3 = upper secondary school, 4 = university or university college < 2 years, 5 = university or university college, ≥ 2 years, 6 = PhD programmes

Area of property	Area (m <sup>2</sup> ) of property	1 = No property area, 2 = property area up to 900 m <sup>2</sup> , 3 = more than 900 m <sup>2</sup>
Marital status_01	Marital status_06 Marital status	1 = Married, 2 = widowed, 3 = unmarried, 4 = divorced, 5 = registered partnership, 6 = divorced partner, 7 = surviving partner
Children home_01	Change in marital status Children home_06 Number of children at home	Widowed 5 per cent and divorced 1 per cent in total population (7 per cent and 3 per cent, respectively, for sample leaving owner occupation) Values range from 0 to 9
Segment_01	Change in children at home Segment_06 Tenure	One or several moving out, leaving one or several children at home in total population
Stayers_movers	Changed coordinate for both north and/or east 100 × 100 m <sup>2</sup> , stayers = 0, movers = 1	1 = Owner occupation, 2 = tenant co-operative, 3 = municipal rental, 4 = private rental, 5 = other