



The effect of widowhood on housing and location choices

Carole Bonnet^a, Laurent Gobillon^{b,*}, Anne Laferrère^c

^a INED, 133 Boulevard Davout, 75980 Paris Cedex 20, France

^b INED, PSE and CREST, France

^c INSEE and CREST, 18 Boulevard Adolphe Pinard, 75675 Paris Cedex 14, France

ARTICLE INFO

Article history:

Received 26 May 2008

Available online 18 April 2010

JEL Classifications:

J12

J14

R21

R23

Keywords:

Elderly

Widowhood

Residential mobility

Housing choice

Location choice

ABSTRACT

The number of elderly persons living alone is increasing and their influence on the housing market is getting larger. This paper investigates the effect of the loss of a spouse on housing and location choices. A partner's death induces a decrease in income which may lead to downsizing. Widowhood may also reveal new preferences, such as the need to be close to care givers and health services. We estimate the effect of a transition to widowhood on housing consumption and location choices using the French Housing Surveys. Widowhood significantly increases residential mobility, especially at older ages and for those who have children. Mobile widows tend to live closer to their relatives but do not move to co-reside with a child. Housing and location adjustments are consistent with new widows moving to dwellings that are smaller, more often apartments and in the rental sector, and on average located in larger municipalities where services are more accessible. The housing demand of widows will be significant in the next 20 years, especially the demand for small dwellings.

© 2010 Elsevier Inc. All rights reserved.

1. Introduction

Population ageing will change many societies in unprecedented ways. Governments are debating to what extent demographic changes are a threat to the financial sustainability of pension and healthcare systems. How housing adjustments at older ages may have an impact on the housing market is less often investigated. In this context, widowhood is becoming more important, with the arrival of large baby-boom cohorts at the age of the loss of a spouse or partner (Kalogirou and Murphy, 2006). According to the official household projections of the French Institute of Statistics, the number of couples aged 60 and over will increase by 28% between 2010 and 2030 while the number of single-person households aged 60 and over will be 60% higher (Jacquot, 2007). Among the latter, many will be widows.

Widowhood affects welfare in many ways. It affects income and living standards as the survivor's pension is smaller than the partner's income. The budget share of housing is large and housing consumption presents economies of scale that are lost when the partner dies. For these reasons, a surviving spouse may want to downsize. Widowhood also affects living arrangements. It is well documented that a fair amount of care to the disabled elderly is provided by a spouse, most often by the wife (Chappell, 1991; Freedman, 1996). In case of need, a widow has to turn to other family members, or to professionals financed by private or public insurance. The issue of long term care is related to the housing choices of the oldest old, as they choose between accommodation in nursing homes or personal care in their own dwelling. As the baby-boom generations reach age of widowhood, their impact on the housing market may be considerable. We study the residential mobility, housing and location choices of recent widows and widowers. Do they downsize? Do they relocate? Our goal is to get some evidence on the impact of the residential mobility of widows on the housing market

* Corresponding author. Fax: +33 (0) 56 06 21 94.

E-mail addresses: carole.bonnet@ined.fr (C. Bonnet), laurent.gobillon@ined.fr (L. Gobillon), anne.laferrere@insee.fr (A. Laferrère).

and on the extent to which widows may rely on kinship for support.

The specific residential mobility and housing choices of the elderly have not often been analyzed in the economic literature except in a few empirical papers (Venti and Wise, 1987; Börsch-Supan, 1990; Ermisch and Jenkins, 1999; Venti and Wise, 2001; Tatsiramos, 2006; Laferrère, 2005, 2006). These studies adopt a broad view, looking at the effect of all shocks – job change, retirement, widowhood – on mobility. They also analyze the change in housing characteristics and location when a move occurs. However, they do not usually disentangle the various causes of mobility. Hence, the results are generated by a mix of several economic and socio-demographic effects. Conversely, the literature on widowhood does not look much at mobility (with the exception of Chevan, 1995) and housing choices, and focuses more on widows' living arrangements at a given point in time, but not on their dynamics (Macunovich et al., 1995; Costa, 1999; Iacovou, 2000).¹ The present paper tries to reconcile the two approaches and explain how widowhood may lead to mobility, housing adjustments and relocation.

We find that the loss of a spouse has a significant positive impact on residential mobility, especially at older ages. *Ceteris paribus*, when the partner dies, the probability of moving within the next four years is nearly 90% higher than if no death occurred. A childless widow is less likely to move. Mobile widows tend to live closer to their relatives but moving to co-reside with a child is extremely rare. Compared to mobile couples, mobile widows are more likely to decrease their number of rooms and to choose the rental sector. They also switch more often from a house to an apartment. Finally they move more often to larger municipalities. These results on housing and location adjustments are consistent with a tendency among single elderly people to move closer to health and personal care services.

We then simulate the housing demand of additional widows over the 2010–2030 period relying on official households projections. We find that this demand would represent nearly 8% of yearly new constructions. The demand would be especially important for apartments and small dwellings. For one or two room units, it would represent between 13% and 19% of the yearly construction.

The Section 2 provides descriptive statistics and presents some institutional features related to widowhood in France. In Section 3, we discuss the effect of a transition to widowhood on housing and location choices. We then test some of the mechanisms on data from the French Housing Surveys, which are described in Section 4. Section 5 delineates our empirical findings. Section 6 presents some simulations. Section 7 concludes.

2. The French setting

We first present some stylized facts on widowhood after age 60. Fig. 1 shows the proportion of widows and widowers by age, for five birth cohorts. The proportion

increases with age, and is always larger for women than for men. The difference can be explained by the higher death rate of men and by the age gap between spouses, as wives are on average 2.5 years younger than their husbands. For instance, for women born in 1920, the rate of widowhood at age 80 is 60%, more than 3 times the rate for men (17%). It means that a large majority of married men live with their spouses until death whereas a large majority of women spend part of their life as widows. This justifies our use of the word widow instead of widow or widower in this paper. At a younger age, the rate of widowhood also decreases from one cohort to the next. This is due to the general increase in life expectancy which makes widowhood occur later in the life-cycle.² As a result, the loss of a spouse or a partner is more and more likely to be combined with old age problems.

The death of a spouse induces a fall in household resources as it entails the loss of the partner's income. To compensate for the loss, widows in many countries are eligible for social security benefits in the form of a survivor's pension (see Burkhauser et al., 2005). In France, the average survivor's pension varies between 50% and 60% of the deceased spouse's pension (COR, 2008). Hence, in many cases, it does not fully compensate for the income loss related to widowhood.³ It is not possible to compute the change in income due to widowhood using the French Housing Surveys. Nevertheless, we can recover some indirect information from the average income of cohorts by age of the household head (see Fig. 2).

The average income does not decrease after age 70. This is surprising at first glance because many couples experience the death of one partner at that age (see Fig. 1). The observed stability of income may be generated by three main mechanisms:

- First, as mentioned above, the surviving spouse gets a survivor pension that is designed to help her maintain the same living standards. This pension may be complemented with income from assets.
- Second, mortality rates at older ages vary with education and income level. The life expectancy of the lowest income groups is lower and on average they die first (Jusot, 2004). Hence, there is a selection effect as the proportion of high-income households increases with age.
- Third, some poor widows may move to sheltered housing or nursing homes. They are excluded from our sample.⁴ Delbès and Gaymu (2005) and Angelini and

² Deaths among unmarried couples are not recorded here as widowhood. The bias is negligible for the current cohorts aged 60 or more. But for the future generations who form lasting partnerships outside marriage, a new word may have to be found for the loss of a partner outside marriage.

³ Suppose the husband received a pension P_H and the wife has no pension. After the husband's death, the survivor pension will be roughly $0.55P_H$. With the most commonly used equivalence scale, the living standard of the surviving spouse will decrease from $0.7P_H$ (i.e. $\frac{P_H}{\sqrt{2}}$) to $0.55P_H$ i.e. by about 22%. Assuming that the wife received P_F equal to one third of P_H , the decrease in the living standard will be around 6%.

⁴ More precisely, only part of retirement homes and dwellings for the elderly are categorized as ordinary homes and included in the French Housing Surveys used for Fig. 2. These are mainly dwellings for non-disabled elderly.

¹ Another strand of the literature studies the living arrangements of the elderly in a dynamic setting but does not focus on widows (see Börsch-Supan et al., 1992; Heiss et al., 2003).

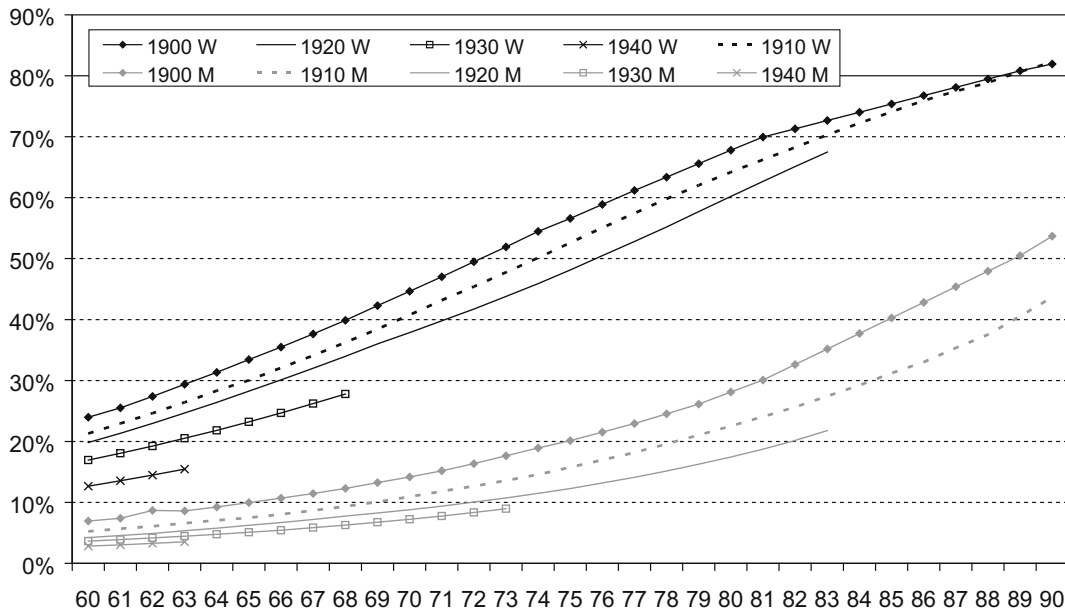


Fig. 1. Percentage of widows (W) and widowers (M) by age for five birth cohorts. Source: French register of civil status (*Etat Civil*).

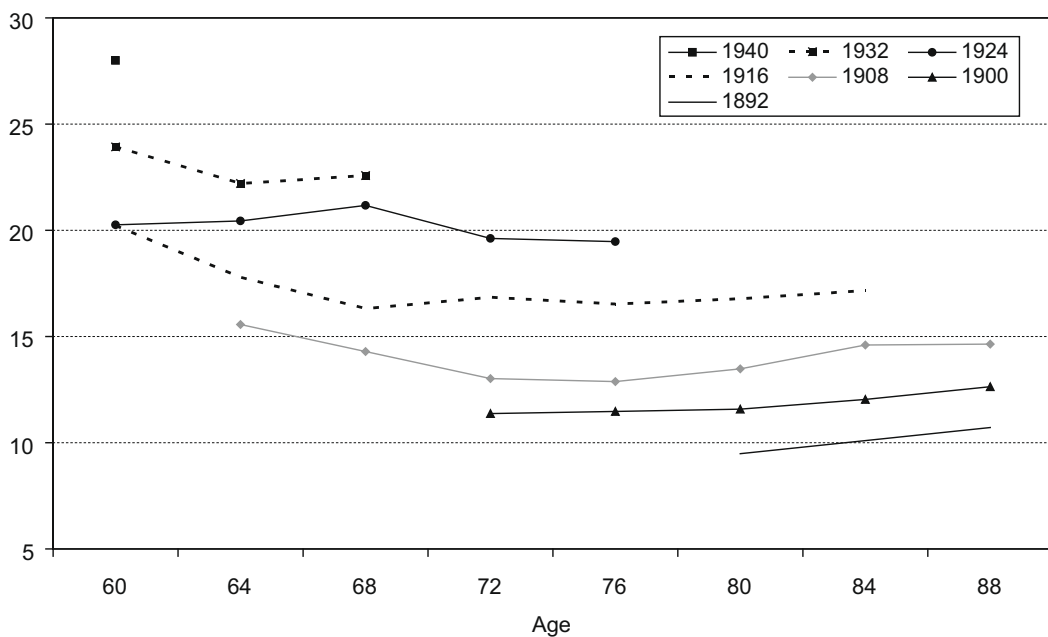


Fig. 2. Average household income by age and birth cohort. Source: Laferrère (2005), computation from the 1973, 1978, 1984, 1988, 1992, 1996 and 2002 Housing Surveys, INSEE. Note: income is expressed in thousands of 2001 euros. Cohorts are four-year cohorts. For instance, the 1940 cohort includes all the households born during the 1937–1940 period.

Laferrère (2008) find that entry into a nursing home is more likely for low-income groups.

Actually, most widows aged between 60 and 85 years old live independently (see Fig. 3). Co-residing with children is rare, and even gets less frequent among younger

generations (Flipo et al., 1999). Entries into nursing homes increase only above age 85. Nearly one third of widows between 90 and 94 years old live in residential care (Delbès and Gaymu, 2005).

Widowhood can also influence a surviving spouse's wealth because of the rules governing marriage property

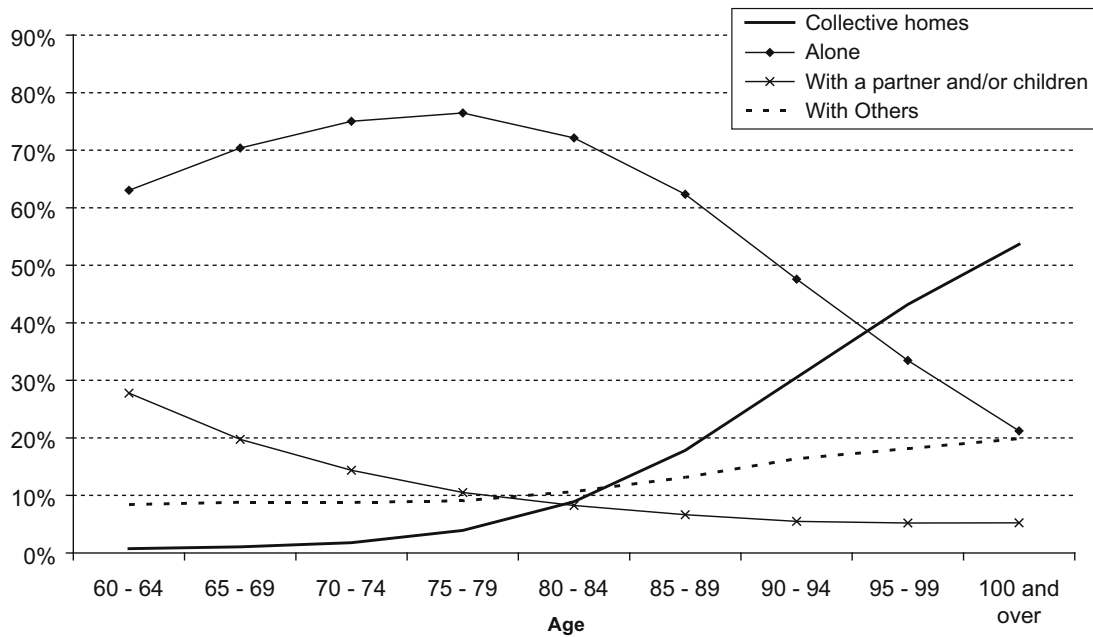


Fig. 3. Living arrangements of widows by age, in 1999. *Source:* constructed from the 1999 French Census. *Note:* the sample excludes widowers. "With others" describes households with at least two members, other than a child or a partner.

and inheritance. Under the French marriage law,⁵ all assets acquired during marriage are held in common, that is, half of them belong to each spouse. Hence after a death, half of the couple's common property belongs to the surviving spouse, but the other half is bequeathed to the heirs. The deceased partner's property is divided between the surviving spouse and their children. A surviving spouse may have to share with her children the property of the dwelling in which she lived with her husband. In most cases, the transfer of ownership rights to the children does not change much for the widowed mother who can go on living in her home. But depending on the overall size of the inheritance, she may be forced out. Typically if the couple's only asset was the home, the children might put some pressure on their surviving parent to sell the home and divide the money among the heirs, if only to pay inheritance tax. Besides, an altruistic surviving mother may agree to sell the dwelling to help her liquidity constrained children. This awkward situation can be prevented if the deceased spouse has made a will which gives the surviving spouse a life interest in the home (the usufruct) as long as she lives.⁶ Due to this feature of the French law, we expect that the more children a widow has, the more likely she is to move out of her home.

Some further information is useful to fully understand the idiosyncrasies of the French housing market that may be relevant to our subject. In France, households cannot borrow on the value of their property as in the US. Typi-

cally, a couple saves for a downpayment while renting an apartment, then borrows to buy a house and repays all of the mortgages over the next 10–20 years. Hence, most of the elderly do not have any mortgages. In 2002, only 2.3% of persons aged 65 and more had a mortgage.⁷

One means of extracting equity from a home in France is to sell it *in viager*. The full ownership of the dwelling is exchanged for a given amount of money and a life annuity, which can be the right to stay in the dwelling. Such life annuity sales have been made famous by Jeanne Calment who lived to 122 years old and outlived the purchaser of her home. However, life annuity sales are rare and their number has been declining over time. New equity-release products such as reverse mortgage loans are currently being proposed but they have not yet become widespread.

Homeowners do not pay an income tax on the imputed rent of their home. There is no tax on capital gains when selling a family home, but stamp duty and a compulsory notary act amount to transaction costs of around 7% of the property value. Annual property tax is based on the rental value of the property,⁸ but persons aged 75 and more who do not pay any income tax, are exempted from the property tax. There is also a local tax (called *taxe d'habitation*) based on the rental value which is paid both by owner-occupiers and by tenants.⁹

⁷ This figure was computed from the French Housing Survey.

⁸ Property tax is typically 1% of the value. However, the values were established in 1970, and are only mechanically updated, without being revised: neighbourhood gentrification is, for instance, not taken into account.

⁹ Low-income households also have a tax exemption. In 2002, the median annual local tax for persons aged 60 and above was 345 Euros (authors' computation from the French Housing Survey).

⁵ As was applied until 2001. The law is now more favorable to the surviving spouse. See Laferrère (2001) for more details on French marriage contracts, and Arrondel and Laferrère (2001) on inheritance rules.

⁶ For a dwelling, the usufruct is the right to use it. For a financial asset or a housing investment, it is its return. Since 2001, the survivor has a life interest in the deceased spouse's property even in the absence of a will.

Tenants can rent a dwelling in the private sector where the yearly rent growth is capped by law. Rents are freely adjusted after a change of tenant. This discourages moves as they are associated with the loss of tenure discount. Tenants can also rent a dwelling in the public sector where rents are low.¹⁰ When a tenant is aged 70 and above, and has a low income, he/she cannot easily be expelled.¹¹ Overall, most features of the French housing market tend to discourage the elderly from moving.

3. The effect of widowhood on housing choices

This section reviews the main mechanisms by which the death of a spouse can affect the residential mobility of the survivor, as well as housing and location choices.¹²

3.1. Changes in housing services and income

Housing has many specific characteristics compared to other consumption goods. There are some large economies of scale in consumption as housing is a partially public good (Nelson, 1988). Besides, there can be increasing returns in the household production of goods and services. For instance, cooking for two takes less than twice the time of cooking for one.¹³ Sharing a home may also yield positive complementarities as some tasks, such as gardening, may be performed better by one of the spouses than by the other. All these benefits disappear when a partner dies and occupying a large dwelling becomes less attractive. On the other hand, if the home was too small, congestion disappears. An extra room may also be useful if the survivor wants to lodge a care-giver or visitors to overcome loneliness.

Overall, we expect that for a new widow, the benefits of occupying a large dwelling are small compared to the high occupation costs, especially when the survivor's pension does not fully compensate for the loss of the partner's income. A new widow is thus likely to reduce her housing consumption. This is all the more true if she is liquidity constrained and is forced to move. If the housing choices of the couple were made in anticipation of widowhood, the size of the dwelling is closer to the optimum for the widowed partner, and moving is less likely.

A decrease in housing consumption can be achieved by moving from a house to an apartment building, or by reducing the number of rooms. The issue of downsizing of the elderly has been widely discussed in the literature. Venti and Wise (2001) show that US elderly do not reduce their housing equity except when facing a shock such as widowhood. Ermisch and Jenkins (1999) on British panel

¹⁰ More details can be found in Le Blanc and Laferrère (2001).

¹¹ Except if the landlord is him/herself aged 60 and above, or has a low income.

¹² A simple model of the trade-offs determining the choices is proposed in Bonnet et al. (2008).

¹³ Another type of scale economies mentioned by Nelson (1988) are scale economies in price, when the marginal cost of housing is a decreasing function of its quantity. Scale economies in price remain the same when one partner dies, while scale economies in consumption disappear.

data, and Angelini and Laferrère (2008) on European panel data find that residential mobility of the elderly is low and often leads to some downsizing, especially at older ages.

3.2. Mobility costs

Because of moving costs, the moving decision and housing adjustments follow a (s, S) rule (Grossman and Laroque, 1990; Gobillon and Le Blanc, 2004). For a new widow, if the optimal housing consumption is close to her current housing consumption, it is not worth adjusting it because of moving costs. She will move only if her optimal housing consumption is far enough, for her housing adjustment to more than compensate the moving cost. The low mobility of the elderly can be explained by high non-monetary moving costs. Indeed, the elderly are usually less healthy, and have acquired over time some habits and a knowledge of their neighborhood that would be lost if they moved. We expect owners to be less mobile than tenants as their moving costs are usually higher.¹⁴

Moreover, there is less time to recover the sunk cost of the investment as one gets older, and more maintenance tasks are required from an owner than from a renter. For all these reasons, we expect widows to switch from owning to renting more often than the opposite, especially at older ages. The mobility decision is also likely to depend on the trends in housing prices. If prices increased, a widow may want to realize the capital gains on her house. On the contrary, if prices decreased, she may want to stay in her dwelling.

3.3. Preferences and location

The loss of a spouse may also modify the household's preferences. Indeed, husband and wife may have had different preferences which led to a compromise when choosing a dwelling. Widowhood might allow a surviving spouse with low bargaining power to follow her own preferences and choose another home.

Preferences also change because the loss of a spouse means that the survivor faces the absence of a potential caregiver. A widow may be induced to relocate closer to her children, or to move to a place where consumption amenities allow her to live independently in old age. It is usually considered that consumption amenities are offset by low wages or high rents (Roback, 1982). As the elderly no longer get their income from the labor market, they should prefer locations where amenities are offset by low wages and rents are reasonable (Graves and Knapp, 1988).¹⁵

Local housing markets differ in urban and rural areas. Cities provide more apartment buildings and fewer houses, and dwellings are more often for rent. Hence, a new widow owning a house in a rural area is likely to move to an apartment in the rental sector if she relocates in a city.

¹⁴ It is also easier for owners than for tenants to adapt their dwelling.

¹⁵ See also Chen and Rosenthal (2008) for a discussion on how locations vary in their appeal to the elderly.

4. The data

To investigate the housing adjustments made after widowhood, we need information on residential and family history, as well as on the characteristics of the former and current accommodation. Few datasets provide such information. Panel data would seem well suited to studying transitions. However their sample size is small. For instance in the European Community Household Panel, only 65 males and 192 females became widowed over the 1994–2001 period (Ahn, 2004).¹⁶ Besides, panel attrition is likely to be endogenous as mobile households are more difficult to retrieve. For those reasons we use the 1996 and 2002 French Housing Surveys (FHS) that offer large representative samples of the population. These cross-section surveys are also designed to study residential mobility. They offer a large choice of retrospective questions on the housing situation four years before the survey date, as well as questions on whether a move occurred within the last four years, and the reasons for the move. The data include the usual socio-demographic characteristics and income. Importantly, the 2002 survey also provides the total number of children outside the parents' home, which is likely to be an important component of preferences and constraints.

We define a mobile household as one who changed home within the last 4 years. We restrict the sample to households whose head is retired or inactive and was aged between 60 and 85 four years before the survey date.¹⁷ The exclusion of those who are employed is meant to reduce the impact of labor market transitions leading to residential mobility unrelated to the loss of a spouse.¹⁸ We exclude the oldest old because people living in institutions are not included in our data. Entries into nursing homes are not frequent before age 85 (Delbès and Gaymu, 2005 and Fig. 3).

In what follows, the date of the survey (1996 or 2002) is labelled t and the date four years before is labelled $t - 1$. The surveys provide no information on matrimonial status in $t - 1$, but the status in t and the number of household members in $t - 1$ and t are known. We consider that there is a transition to widowhood if a person is widowed and lives alone in t , and the number of household members decreased from two to one between $t - 1$ and t .

This definition ignores recently widowed persons moving to live with their children. However their number is negligible and ignoring them does not induce any significant bias (See Appendix). Neither do we study widowhood when it occurs in a couple living with their children, because we cannot identify them accurately enough.¹⁹

Our final sample comprises 14,257 households (6610 in the 1996 FHS and 7637 in the 2002 FHS) among whom 1016 individuals experience a transition to widowhood (441 in the 1996 FHS and 575 in the 2002 FHS).²⁰ Descriptive statistics are presented in Table 1.

Table 2 gives the rates of transition to widowhood among couples. They increase with age. Between 1998 and 2002, around 30% of couples aged 80–84 experienced the loss of a spouse. Widowhood is less frequent before 64 and is more frequent at later ages in 2002 than in 1996. As was noted for the cohort effect in Fig. 1, these differences are related to the rapid increase in life expectancy that makes widowhood happen later in the life cycle.

We define six non-overlapping family situations from marital status and shocks on household composition:

- (1) *Couple*: a man and a woman living together in $t - 1$, whether they are legally married or not and still living together as a couple in t .²¹
- (2) *Single or divorced*: a person living alone in $t - 1$, and single or divorced in t .
- (3) *Widow*: a person living alone in $t - 1$, and widowed and living alone in t .
- (4) *Three people and more*: households with more than two members in $t - 1$.²²
- (5) *Recently widowed*: a person in a two-person household in $t - 1$, and widowed and living alone in t .
- (6) *Recently separated*: a person in a two-person household in $t - 1$, and divorced and living alone in t .

Recently separated couples (6) account for less than 1% of the sample. We exclude them from the analysis. Table 1 gives the population composition by family situation in 2002. Couples (1) are the largest group and account for 42% of the sample, long-term widows (3) are the second largest group at 26%. The percentage of recently widowed (5) is 8%.

The mobility rate over the 1998–2002 period is reported for each group in col. 3 of Table 1. Recently widowed have the highest mobility rate (13.3%), which is more than twice the rate of couples. Interestingly, the mobility rate of long-term widows is far smaller (7.9%) than that of recently widowed.

5. Multivariate analysis

5.1. Mobility

We now assess empirically the effect of being recently widowed on mobility. We estimate a probit model where the dependent variable is a dummy equal to one in the event of a move and zero otherwise. Differences in mobility between family situations are captured by four

¹⁶ In the US Panel Study on Income Dynamics (1980–1997), the German Socio-Economic Panel (1984–2000), the British Household Panel (1991–2000) and the Canadian Survey of Labour and Income Dynamics (1993–2000), 571, 345, 197 and 633 females aged 50 years old and over become widowed (Burkhauser et al., 2005).

¹⁷ Household head is defined as the male for couples and as the individual living alone at the survey date otherwise.

¹⁸ It does not eliminate the effect of retirement on mobility occurring after retirement. However, only eight mobile households gave this reason for their move in our sample (see Table 6).

¹⁹ Their number can be approximated by the number of households including a widow in t whose size decreased from n to $n - 1$ between $t - 1$ and t . They represent only 6% of the recent widows.

²⁰ In 1996, 103 males and 338 females had experienced widowhood. In 2002, the corresponding figures are 144 males and 431 females.

²¹ Most people over 60 years old living together are married.

²² This group includes some couples with children who experience the death of one of the partners. We do not distinguish them as we focus on transitions to widowhood among couples (see above).

Table 1
Descriptive statistics.

Variables	Sample size	Number of movers	Mobility rate (1998–2002) in percent
<i>Age group in t – 1</i>			
60–64 years old	1776	170	9.4
65–69 years old	2112	170	7.8
70–74 years old	1889	134	6.8
75–79 years old	1302	83	6.0
80–84 years old	498	47	10.3
<i>Sex</i>			
Male	4636	312	6.6
Female	2941	292	9.6
<i>Education</i>			
Primary school	4953	400	7.8
Secondary school, technical, high school	2028	153	7.5
=2 years at University	131	13	9.4
>2 years at University	465	38	7.7
<i>Children outside household</i>			
No	1239	77	5.9
Yes	6338	527	8.1
<i>Housing tenure in t – 1</i>			
Homeowner	5552	279	4.8
Private renter	815	194	22.7
Public renter	804	93	11.0
Rent free	406	38	9.4
<i>Population in municipality in t – 1^a</i>			
Less than 1000	1485	73	5.2
1000–5000	1962	138	6.7
5000–10,000	780	49	6.0
10,000–50,000	1800	164	8.9
More than 50,000	1416	175	11.5
<i>Income (Quartiles) in t</i>			
Q1	1859	162	8.4
Q2	1930	148	7.3
Q3	1906	154	8.1
Q4	1882	140	7.1
<i>Housing type in t – 1</i>			
House	5320	314	5.6
Apartment	2257	290	12.3
<i>Family type in t – 1 and t</i>			
Couple in t – 1 and t	3224	203	6.1
Single or divorced in t – 1 and t	774	91	11.5
Widow in t – 1 and t	1965	163	7.9
Three people or more in t – 1	1039	71	6.3
Couple in t – 1 widowed in t	575	76	13.3
Number of observations	7577	604	7.8

Source: Authors' computation from the 2002 Housing Survey, INSEE.

Note: Sample of households where head is retired or inactive and aged 60–84 in 1998, excluding recently separated (60 observations). Mobility rates are weighted.

^a The sample size used for population in municipality is smaller (7443 observations), due to missing values.

dummies, each corresponding to one of the types (2–5) defined in the previous section. Couples (type 1) are the reference. As children are both potential providers of care and help, and potential claimants to the inheritance of the parental home, a dummy for the existence of children living outside the parents' home is introduced.²³ Regressors

²³ The information on independent children is only provided in the 2002 FHS. Hence, we restrict the sample to this survey in this sub-section. As a robustness check, we ran a regression including all the other explanatory variables on the pooled 1996 and 2002 FHS. Results remain the same.

Table 2
Transitions to widowhood by age group.

Age group	1992–1996		1998–2002	
	Rate (%)	Number of observations	Rate (%)	Number of observations
60–64	11.5	98	8.3	81
65–69	11.7	115	14.2	157
70–74	15.0	112	17.4	164
75–79	18.4	63	20.6	123
80–84	23.3	53	29.8	50
All	14.4	441	15.6	575

Source: Authors' computation from the 1996 and 2002 Housing Surveys, INSEE.

Note: The rate of transitions to widowhood is defined for the sample of couples (with head aged 60–84 and retired or inactive four years before the survey date), as the ratio of the number of couples experiencing a transition to widowhood to the total number of couples. This rate is weighted.

also include age, sex and education of the household head. Housing tenure and housing type are introduced as proxies for mobility costs, dwelling quality, and long term suitability to needs. Municipality size is measured by the 1999 Census population which was added to our dataset using a restricted access municipality code. The population of the municipality (less than 1000 inhabitants; 1000–5000; 5000–10,000; 10,000–50,000; and more than 50,000) captures effects related to the structure of the housing market and to amenities.

Finally, the income level after the partner's death may affect mobility.²⁴ On the one hand, income can have a positive effect as it helps finance moving costs. On the other hand, it can have a negative effect because low-income recently widowed may be unable to pay for their housing expenditure and be forced to downsize. The overall effect on mobility is an empirical issue and the arguments given above suggest that it may be non linear. We first introduced income and its square in our probit models. The effect of income was found to be an inverse U-shape, with the vast majority of observed households being on the increasing part of the parabola (the maximum of the parabola being as high as 86,000 euros). Hence, the income effect is positive and nearly linear, and we stick to a linear specification (in log).²⁵

The first specification tests for differences in mobility between family categories (Table 3, column 1). Single or divorced, as well as recently widowed persons, are found to be more mobile than couples. Recently widowed are the most mobile. *Ceteris paribus*, their probability of moving is nearly 90% higher than for couples. Note that those who have been widowed for more than 4 years are no more likely to move than couples. It suggests that when

²⁴ The change in income due to the partner's death is likely to influence mobility. However, we only know income at the survey date; hence we cannot compute the change in income. As a result, the dummy for being recently widowed will capture the effect of the income change on mobility.

²⁵ Income after widowhood might be endogenous since new mobile widows may sell a dwelling, invest in a financial asset and get some extra income. To overcome this difficulty, we instrumented income with the overall pension level. For the recently widowed, the pension includes both her own pension and the survivor's pension. It is based by law on the level of the two partners' incomes before retirement and is thus exogenous. The results were very similar (they are available in Bonnet et al., 2008).

Table 3
Probability of moving between 1998 and 2002 (probit).

Variables	Whole sample (1)	Couple in $t - 1$ and t (2)	Widow in $t - 1$ and t (3)	Couple in $t - 1$ widowed in t (4)
Constant	-3.194*** (0.454)	-3.391*** (0.786)	-3.738*** (0.841)	-4.319*** (1.535)
<i>Age group in $t - 1$</i>				
60–64 years old	Ref.	Ref.	Ref.	Ref.
65–69 years old	-0.142** (0.061)	-0.182* (0.096)	-0.132 (0.144)	0.290 (0.248)
70–74 years old	-0.234*** (0.065)	-0.212** (0.100)	-0.311** (0.144)	-0.034 (0.261)
75–79 years old	-0.326*** (0.075)	-0.266** (0.124)	-0.398*** (0.150)	0.088 (0.270)
80–84 years old	-0.124 (0.097)	-0.103 (0.201)	-0.187 (0.166)	0.577* (0.307)
<i>Sex</i>				
Male	Ref.		Ref.	Ref.
Female	0.085 (0.071)		0.089 (0.132)	0.399** (0.196)
<i>Education</i>				
Primary school	Ref.	Ref.	Ref.	Ref.
Secondary school, technical, high school	-0.086 (0.056)	-0.158* (0.090)	-0.057 (0.111)	-0.374* (0.198)
=2 years at University	-0.023 (0.162)	-0.011 (0.254)	-0.101 (0.369)	0.556 (0.436)
>2 years at University	-0.125 (0.105)	-0.175 (0.155)	-0.257 (0.281)	-0.889 (0.627)
<i>Children outside household</i>				
No	Ref.	Ref.	Ref.	Ref.
Yes	0.242*** (0.070)	0.051 (0.134)	0.207 (0.142)	0.485* (0.273)
<i>Housing tenure in $t - 1$</i>				
Homeowner	Ref.	Ref.	Ref.	Ref.
Private renter	0.910*** (0.064)	1.057*** (0.111)	0.745*** (0.121)	1.125*** (0.206)
Public renter	0.338*** (0.079)	0.413*** (0.148)	0.102 (0.150)	0.482* (0.276)
Rent free	0.380*** (0.096)	0.296 (0.190)	0.244 (0.160)	0.655** (0.284)
<i>Population in municipality in $t - 1$</i>				
Less than 1000	Ref.	Ref.	Ref.	Ref.
1000–5000	0.118 (0.074)	0.190* (0.114)	0.035 (0.155)	0.174 (0.241)
5000–10,000	0.020 (0.095)	-0.037 (0.160)	0.319* (0.174)	-0.138 (0.333)
10,000–50,000	0.137* (0.078)	0.100 (0.127)	0.201 (0.155)	0.252 (0.264)
More than 50,000	0.242*** (0.084)	0.214 (0.139)	0.205 (0.168)	0.296 (0.270)
<i>Housing type in $t - 1$</i>				
House	Ref.	Ref.	Ref.	Ref.
Apartment	0.136** (0.064)	0.097 (0.109)	0.219* (0.120)	-0.011 (0.204)
Log-income in t	0.125*** (0.045)	0.168** (0.079)	0.188** (0.085)	0.175 (0.155)
Number of Excess Rooms in $t - 1$	0.027 (0.017)	0.005 (0.029)	0.055* (0.033)	0.116** (0.057)
<i>Family type in $t - 1$ and t</i>				
Couple in $t - 1$ and t	Ref.			
Single or divorced in $t - 1$ and t	0.204** (0.094)			
Widow in $t - 1$ and t	0.032 (0.086)			

(continued on next page)

Table 3 (continued)

Variables	Whole sample (1)	Couple in $t - 1$ and t (2)	Widow in $t - 1$ and t (3)	Couple in $t - 1$ widowed in t (4)
Three people and more in $t - 1$	-0.030 (0.078)			
Couple in $t - 1$ widowed in t	0.385*** (0.096)			
Number of observations	7440	3172	1924	569

Source: Authors' computation from the 2002 Housing Survey, INSEE.

Note: Sample of households whose head is retired or inactive and aged 60–84 in 1998.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

widowhood induces mobility, it is mostly within the four-year period after the partner's death. This result is in line with that obtained on the US Panel Study of Income Dynamics (Chevan, 1995).

Mobility decreases with age until age 80 and then increases. Education has no significant effect. This is not surprising since residential mobility related to education choices would have occurred sooner in the life-cycle. The positive effect of income on mobility is in line with the need to pay for moving costs, but not with liquidity constraints that would force a move to reduce housing costs. Those who have children are significantly more mobile than those who are childless. This is consistent with parents relocating closer to their children either to receive support (Ogg and Renaut, 2005; Glaser and Tomassini, 2000; Laditka and Laditka, 2001) or to take care of their grand-children. The effect of tenure is also in line with expectations: owners are less mobile than tenants. We also find the usual result for France that private-sector tenants are more mobile than public housing tenants (Gobillon, 2001). Indeed, public housing tenants pay lower rents than in the private sector and would lose this benefit when moving to the private sector. Living in a house has a negative effect on mobility, probably because it is usually associated with higher quality. There is also a positive effect of living in a large municipality (more than 50,000 inhabitants) on mobility. Finally the number of excess rooms, defined as the number of rooms minus the number of persons living in the dwelling, has no significant effect on mobility.

To shed more light on the specific behavior and constraints of the recently widowed, we then run separate probits for three main family situations: couples, long-term widows, and recently widowed (Table 3, columns 2–4). Overall, estimated parameters of couples and recently widowed are quite similar. A χ^2 -square test shows that the two sets of parameters are not different at a 5% level. By contrast the sets of estimated parameters of long-term widows and recently widowed are significantly different.²⁶

²⁶ When conducting a comparison test for couples and recently widowed, we dropped the sex variable from the specification for recently widowed to have the same variables for the two probit specifications. The critical value of the $\chi^2(19)$ statistic at the 5% level is 30.14. We get a value of 18.24 which is below the threshold. When comparing the results for stable and recently widowed, we get a $\chi^2(20)$ statistic of 42.03. This value is above the 1% threshold 37.57.

The variations of the effect of some variables between groups are worth commenting. Interestingly, the age profile and the effect of children differ for the group of recently widowed. The mobility of recent widows does not decline with age, and increases sharply above age 80, more than for couples and long-term widows. This is consistent with housing adjustments triggered by health problems. While couples can rely on a spouse for care and stay at home, an older widow may have to move to get care. She may want to relocate closer to her children or to a place where health services and medical care are more accessible. As people moving to institutions are excluded from our study, the high residential mobility between private dwellings above age 80 is consistent with new cohorts of elderly trying to live and age independently for as long as possible.

Having children increases the propensity to move only for those recently widowed (the effect is significant at 10%), and has no effect for couples and long-term widows. It is hard to disentangle the reasons for this positive effect: it may point to the need for family support at close range, or to some pressure by the children at the time of inheritance. Some of the moves may be due to the necessity of sharing the deceased parent's estate. The pressure is likely to be stronger for widows than for widowers because the wives of the cohorts we study might own fewer personal assets than their husbands. Consistent with this idea, we find that recent widows are significantly more likely to move than recent widowers. A more convincing test would be to interact the children dummy with the sex dummy. Unfortunately the sample does not include enough recent childless widowers to get convincing results. Females are more affected by disabilities than males of the same age (Cambois et al., 2003). The significant positive effect of the female dummy is thus also compatible with their having or anticipating more health problems.

The number of excess rooms has a positive effect for widows but not for couples. Their mobility is more likely than that of couples to be triggered by a disequilibrium in housing consumption. It may be a sign of the financial burden of a large dwelling. The next sub-section analyzes the housing choices of movers and will provide some additional evidence that widows may be income constrained.

Table 4Change in the number of rooms, multinomial logit (reference: *Moving, no change*).

Category	No move	Downsizing	Upsizing
Constant	3.158*** (0.681)	-0.845 (0.825)	-1.364 (1.001)
<i>Age group in t – 1</i>			
60–64 years old	Ref.	Ref.	Ref.
65–69 years old	0.096 (0.157)	-0.216 (0.197)	-0.044 (0.220)
70–74 years old	0.158 (0.166)	-0.022 (0.204)	-0.595** (0.255)
75–79 years old	0.837*** (0.229)	0.568** (0.268)	-0.109 (0.329)
80–84 years old	0.692** (0.280)	0.742** (0.321)	-0.037 (0.390)
<i>Sex</i>			
Male	Ref.	Ref.	Ref.
Female	-0.085 (0.188)	0.056 (0.223)	-0.050 (0.278)
<i>Housing tenure in t – 1</i>			
Homeowner	Ref.	Ref.	Ref.
Private or public renter	-1.133*** (0.145)	0.193 (0.181)	-0.287 (0.210)
<i>Population in municipality in t – 1</i>			
Less than 1000	Ref.	Ref.	Ref.
1000–5000	-0.334 (0.249)	0.011 (0.288)	-0.434 (0.356)
5000–10,000	-0.300 (0.295)	0.031 (0.346)	-0.426 (0.425)
10,000–50,000	-0.330 (0.254)	0.139 (0.295)	-0.392 (0.361)
More than 50,000	-0.580** (0.261)	-0.081 (0.308)	-0.529 (0.372)
<i>Housing type in t – 1</i>			
House	Ref.	Ref.	Ref.
Apartment	-0.153 (0.172)	-0.271 (0.210)	0.203 (0.253)
<i>Log-income in t</i>	0.030 (0.060)	-0.046 (0.072)	0.203** (0.088)
<i>Number of excess rooms in t – 1</i>	0.465*** (0.056)	0.757*** (0.062)	-0.258*** (0.083)
<i>Family type in t – 1 and t</i>			
Couple in t – 1 and t	Ref.	Ref.	Ref.
Single or divorced in t – 1 and t	-0.042 (0.219)	0.006 (0.285)	-0.010 (0.315)
Widow in t – 1 and t	0.219 (0.233)	0.357 (0.281)	0.082 (0.343)
Three people and more in t – 1	0.616*** (0.208)	1.134*** (0.253)	-0.693** (0.316)
Couple in t – 1 widowed in t	-0.103 (0.271)	1.322*** (0.312)	-0.172 (0.406)
Number of exits	12,879	558	243
Number of observations	13,978	13,978	13,978

Source: Authors' computations from the 1996 and 2002 Housing Survey, INSEE.

Note: Sample of mobile households whose head is retired or inactive and aged 60–84 in $t - 1$. Number of individuals moving with no change in the number of rooms: 298.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

5.2. The housing choices of mobile widows

Recent widows may move to adjust their housing consumption, and more precisely to downsize by reducing their number of rooms. We now use both the 1996 and

2002 surveys to get a large enough sample of movers. In this sample, 30% of moving couples increase their number of rooms and 39% decrease it.²⁷ By contrast, only 9% of mobile recent widows increase their number of rooms, while 74% decrease it. Moreover, half of those who downsize do so by two rooms or more. To get more insight into the determinants of downsizing, we model the simultaneous decision of mobility and housing adjustments using a multinomial logit with four categories: no move, a move with no change in the number of rooms (reference), an increase, or a decrease. This model is meant to describe the change in the number of rooms when moving, all other things being equal, in the spirit of Ermisch and Jenkins (1999).²⁸ It was preferred over a nested logit as there is no alternative-specific variable in our specification.²⁹ Results are reported in Table 4. Conditionally on moving, downsizing increases after age 75. The number of excess rooms has a positive effect on downsizing and a negative effect on upsizing. Hence, moves tend to correct for a disequilibrium in housing quantity.³⁰ While income has no significant effect on downsizing, more income induces upsizing. Whereas recent widows are more likely to downsize than couples when moving, there is no significant difference for upsizing.

We then examine whether households choose an apartment or a house when moving. Among mobile recent widows, 36% lived in an apartment before the move when they were still married and this proportion doubles to 73% after the move. By comparison, the increase is negligible for couples: 45% live in an apartment before the move and 47% do so after the move. We then have a more careful look at the subsample of households who lived in a house in $t - 1$ for which we estimate a multinomial logit of mobility and housing type with three categories: no move, a move towards a house (reference), a move towards an apartment. Results are reported in Table 5. As expected, mobile recent widows are more likely than mobile couples to switch from a house to an apartment. So are mobile long-term widows, as well as mobile single and divorced individuals. Leaving a house for an apartment significantly increases with age. This is not surprising as living in a house usually involves maintenance tasks that are taken care of more collectively in apartment buildings. With increasing age, such tasks become more difficult to perform. Also, houses in France are mostly located in the suburbs and are quite far from town centers where amenities such as stores

²⁷ All figures in this section are weighted.²⁸ The set of explanatory variables does not include the number of children as it is not available in the 1996 survey.²⁹ There are two main reasons why a nested logit is unlikely to behave well in our setting. First, the sources of identification have not been precisely stated in the econometric literature and remain unclear. Second, it is hard for the algorithm looking for the maximum-likelihood estimator to converge as the likelihood is not globally concave (see Train, 2002, p. 88). Nevertheless, we also estimated nested logits instead of multinomial logits for all the multinomial choices studied in this sub-section, with a first nest corresponding to no move, and a second nest including all the alternatives when moving. The nested logits most often performed poorly with the inclusive value of the second nest not being well identified empirically. Results are available from the authors upon request.³⁰ Gobillon and Wolff (forthcoming) find the same results for retiring French households.

Table 5

Switches from house to apartment, multinomial logit, subsample: households living in a house in $t - 1$ (reference: *Moving, house in t*).

Category	No move	Apartment in t
Constant	3.719*** (0.665)	-1.556 (0.947)
<i>Age group in $t - 1$</i>		
60–64 years old	Ref.	Ref.
65–69 years old	0.172 (0.150)	0.021 (0.233)
70–74 years old	0.442** (0.170)	0.643*** (0.241)
75–79 years old	0.949*** (0.249)	0.896*** (0.324)
80–84 years old	0.333 (0.262)	0.485 (0.355)
<i>Sex</i>		
Male	Ref.	Ref.
Female	-0.105 (0.202)	0.031 (0.265)
<i>Housing tenure in $t - 1$</i>		
Homeowner	Ref.	Ref.
Private or public renter	-1.587*** (0.149)	-0.011 (0.204)
<i>Population in municipality in $t - 1$</i>		
Less than 1000	Ref.	Ref.
1000–5000	-0.273* (0.160)	-0.044 (0.248)
5000–10,000	0.157 (0.238)	0.763** (0.327)
10,000–50,000	-0.038 (0.189)	0.675** (0.268)
More than 50,000	-0.286 (0.228)	0.740** (0.312)
Log-income in t	-0.019 (0.060)	0.018 (0.085)
Number of excess rooms in $t - 1$	-0.020 (0.041)	0.061 (0.057)
<i>Family type in $t - 1$ and t</i>		
Couple in $t - 1$ and t	Ref.	Ref.
Single or divorced in $t - 1$ and t	0.581* (0.308)	1.147*** (0.400)
Widow in $t - 1$ and t	0.473 (0.246)	0.880*** (0.331)
Three people and more in $t - 1$	0.101 (0.182)	0.218 (0.287)
Couple in $t - 1$ widowed in t	-0.648*** (0.246)	1.047*** (0.325)
Number of exits	9683	9683
Number of observations	9120	271

Source: Authors' computations from the 1996 and 2002 Housing Survey, INSEE.

Note: Sample of mobile households whose head is retired or inactive and aged 60–84 in $t - 1$. Number of individuals moving with house in t : 292.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

and health services are located. Moving from a house to an apartment may grant the elderly living on their own better access to these services.

Along the same lines, we investigate the effect of being widowed on a change in housing tenure when moving. Among moving owners, we expect recent widows to switch more often to the rental sector than couples as ownership is more demanding for a single person because of maintenance tasks and paperwork. Indeed, among re-

Table 6

Switches from ownership to rental, multinomial logit, subsample: households owning in $t - 1$ (reference: *Moving, owning in t*).

Category	No move	Renting in t
Constant	3.570*** (0.585)	-1.804* (0.975)
<i>Age group in $t - 1$</i>		
60–64 years old	Ref.	Ref.
65–69 years old	0.360*** (0.136)	0.597** (0.266)
70–74 years old	0.491*** (0.150)	1.056*** (0.269)
75–79 years old	0.958*** (0.210)	1.236*** (0.332)
80–84 years old	0.476** (0.233)	1.318*** (0.349)
<i>Sex</i>		
Male	Ref.	Ref.
Female	-0.080 (0.187)	0.315 (0.279)
<i>Population in municipality in $t - 1$</i>		
Less than 1000	Ref.	Ref.
1000–5000	-0.171 (0.173)	0.342 (0.285)
5000–10,000	-0.146 (0.227)	0.516 (0.356)
10,000–50,000	-0.470*** (0.175)	0.041 (0.298)
More than 50,000	-0.538*** (0.195)	0.132 (0.327)
<i>Housing type in $t - 1$</i>		
House	Ref.	Ref.
Apartment	-0.577*** (0.146)	-0.597** (0.245)
Log-income in t	-0.004 (0.053)	0.008 (0.086)
Number of excess rooms in $t - 1$	-0.077** (0.036)	-0.154** (0.062)
<i>Family type in $t - 1$ and t</i>		
Couple in $t - 1$ and t	Ref.	Ref.
Single or divorced in $t - 1$ and t	0.424* (0.249)	1.115*** (0.397)
Widow in $t - 1$ and t	0.547** (0.227)	1.233*** (0.352)
Three people and more in $t - 1$	0.137 (0.172)	0.471 (0.324)
Couple in $t - 1$ widowed in t	-0.594*** (0.223)	1.038*** (0.347)
Number of exits	10,312	207
Number of observations	10,883	10,883

Source: Authors' computations from the 1996 and 2002 Housing Survey, INSEE.

Note: Sample of mobile households whose head is retired or inactive and aged 60–84 in $t - 1$. Education dummies are included as controls, as in Table 3. Number of individuals moving and owning in t : 364.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

cent widows, 51% of owners switch to renting when they move. Conversely, only 18% of renters switch to owning. The proportions for couples are respectively, 19% and 29%. We check that the differences in the switches from ownership to rental hold *ceteris paribus*. For the subsample of owners in $t - 1$, we estimate a multinomial logit with three categories: no move, a move within the ownership sector (reference) and a switch towards the rental sector.

Table 7
Change in municipality size, multinomial logit (reference: *Moving, no change*).

Category	No move	Smaller municipality size	Larger municipality size
Constant	3.317*** (0.515)	-3.938*** (1.026)	-1.209 (0.823)
<i>Age group in t - 1</i>			
60–64 years old	Ref.	Ref.	Ref.
65–69 years old	0.087 (0.120)	-0.084 (0.206)	-0.335* (0.199)
70–74 years old	0.251* (0.129)	-0.047 (0.223)	-0.021 (0.205)
75–79 years old	0.694*** (0.166)	0.357 (0.268)	0.330 (0.253)
80–84 years old	0.082 (0.175)	-0.147 (0.312)	-0.430 (0.307)
<i>Sex</i>			
Male	Ref.	Ref.	Ref.
Female	-0.100 (0.132)	-0.025 (0.244)	-0.143 (0.216)
<i>Housing tenure in t - 1</i>			
Homeowner	Ref.	Ref.	Ref.
Private or public renter	-1.586*** (0.111)	-0.972*** (0.187)	-0.714*** (0.192)
<i>Population in municipality in t - 1</i>			
Less than 1000	Ref.	Ref.	Ref.
1000–5000	-0.637*** (0.209)	1.302** (0.640)	-0.778*** (0.253)
5000–10,000	-0.723*** (0.239)	1.654*** (0.664)	-1.257*** (0.315)
10,000–50,000	-1.060*** (0.205)	1.669*** (0.627)	-2.310*** (0.284)
More than 50,000	-1.302*** (0.211)	1.841*** (0.631)	-4.025*** (0.402)
<i>Housing type in t - 1</i>			
House	Ref.	Ref.	Ref.
Apartment	0.181 (0.125)	0.580*** (0.211)	0.601*** (0.217)
Log-income in t	0.106** (0.044)	0.171** (0.076)	0.212*** (0.073)
Number of excess rooms in t - 1	0.056 (0.037)	0.081 (0.062)	0.073 (0.055)
<i>Family type in t - 1 and t</i>			
Couple in t - 1 and t	Ref.	Ref.	Ref.
Single or divorced in t - 1 and t	-0.199 (0.170)	-0.487 (0.306)	-0.034 (0.294)
Widow in t - 1 and t	-0.013 (0.168)	-0.385 (0.298)	0.105 (0.274)
Three people and more in t - 1	-0.161 (0.151)	-0.476* (0.270)	-0.243 (0.249)
Couple in t - 1 widowed in t	-0.707*** (0.187)	-0.321 (0.323)	0.739** (0.277)
Number of exits	12,879	249	298
Number of observations	13,978	13,978	13,978

Source: Authors' computations from the 1996 and 2002 Housing Survey, INSEE.

Note: Sample of mobile households whose head is retired or inactive and aged 60–84 in t - 1. Number of individuals moving with no change in the municipality size: 552.

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

widows simplifying housing management and with moves toward town centers where the rental market is larger. It could also result from estate sharing following the spouse's death (see Section 2 on the influence of inheritance laws). Interestingly, among recent widows who move from owning to renting, one third chooses the public sector, which is quite attractive as it provides some homes adapted to the elderly.

Finally, we test whether recent widows are more likely than couples to move to larger municipalities where health and other services are more easily available. Among movers, 40% of recent widows move to a larger municipality whereas this proportion is only 28% for couples. Conversely, only 17% of recent widows move to a smaller municipality whereas 28% of couples do so. We test whether these results still hold *ceteris paribus* by estimating a multinomial logit with four categories: no move, moving within the current municipality (reference), moving to a larger municipality and moving to a smaller municipality (see Table 7). As expected, mobile recent widows chose more often larger municipalities than mobile couples. Interestingly, this is not the case for long-term widows, and single or divorced individuals. They may have already moved to a location more suited to living alone. We also find that being a recent widow decreases the propensity to move to a smaller municipality compared to couples, but the effect is not significant. Overall, the results are consistent with widows moving to larger municipalities where there are more services. Using a file linking each municipality with local services (the so-called 1998 Municipal Inventory), it was possible to check that a larger municipality size goes along with more stores, care and health services.³¹

Our results suggest that the loss of a spouse leads to a relocation for reasons related to preferences. Reasons for moving can also be investigated by using direct questions on the motives for a move which were asked in the 1996 survey. More than one reason could be given. The primary reason for moving given by recent widows is to live close to relatives or to her birthplace. This reason is mentioned by 25.9% of mobile recent widows, compared to only 15.3% of long-term widows and 12.1% of couples (see Table 8). The second reason given by recent widows is downsizing: 17.5% of them wanted to reduce the size of their dwelling. The corresponding proportion is lower for long-term widows (12.1%) and small for couples (4.9%). The third reason given by recent widows for moving is related to their neighborhood quality and location (12.8%). A larger proportion of couples mention these reasons (20.6%). It must be noted that more than one fifth of mobile recent widows declare moving for 'another reason'. Laferrère (2005) observes that this type of answer increases with age and suggests that it could reflect health-related reasons.

If living closer to their relatives is the main reason given by recent widows for moving, we may wonder how close they get to their children. This can be investigated using the 2002 Housing Survey which asks for the distance from

³¹ Descriptive statistics on this topic are available upon request.

The results reported in Table 6 confirm that mobile widows, whether recent or not, switch more often from owning to renting than mobile couples. This is consistent with

Table 8

Reasons for moving, by family type.

	Couple in $t - 1$ widowed in t		Couple in $t - 1$ and t		Widow in $t - 1$ and t	
<i>Type of reason</i>						
Retirement	–		3.9		0.6	
Personal or family reasons ^a including: move closer to family or friends, return to birthplace	27.2	25.9	13.1	12.1	16.5	15.3
Environment or location ^b	12.8		20.6		16.0	
Dwelling size or comfort ^c including: poor dwelling quality wanted a smaller dwelling	18.9	0.9	19.9	7.9	27.2	11.1
		17.5		4.9		12.1
<i>Type of dwelling^d</i>						
Housing tenure ^e	7.1		6.7		4.7	
Income constraint ^f	6.9		6.8		7.4	
Obligation to move ^g	1.0		1.2		1.8	
Other reason	3.5		7.0		6.4	
Other reason	23.6		20.8		20.4	
Number of observations	78		168		117	

Source: Authors' computation from the 1996 Housing Survey, INSEE.

Note: Sample of mobile households whose head is retired or inactive and aged 60–84 in 1992.

^a Separated from partner, moved closer to family or friends, went back to birthplace, looked for a better climate (this item cannot be separated from the preceding reason).^b Unattractive or insecure neighborhood, unpleasant neighbors (too noisy, antisocial behavior), too far from town center and community facilities, wanted to get closer to town center, wanted to live in a less urbanized place.^c Wanted a larger/smaller dwelling, the dwelling quality was poor.^d Wanted to live in a house/in an apartment.^e Wanted to become owner/tenant, found accommodation that could be used for free.^f Wanted to reduce housing expenses (rent, utilities, maintenance cost).^g Lived temporarily in the dwelling, was expelled by the owner.

the independent children. Mobile recent widows usually live very close to their children at the survey date: 84.5% of them live less than 25 km from a child (Table 9, col. 1) versus 71.8% of recent widows who did not move. By contrast, the figures are lower for couples (at 61.1% and 69.6%, respectively). This again suggests that recent widows want to live close to their children.³² We could verify that *ceteris paribus*, mobile recent widows live closer to a child than mobile couples (Table 9, col. 2). Living closer to a child is a means to get more care. Fontaine et al. (2007) stress the importance of children to a widowed parent and show how the siblings step in to take care of a widowed disabled parent.³³

6. Simulations

We now use our results to assess the effect of the increase in widows in the next 20 years on the French housing market. We rely on two additional sources of information: the official household projection by household type conducted by the French Institute of Statistics (Jacquot, 2007) and the projections by matrimonial status derived from the DESTINIE micro-simulation model. We only propose some rough calculations that are meant to give an order of magnitude, rather than precise predictions based on an equilibrium model of housing which is beyond the scope of this paper.

According to the official household projection, the number of households will increase by 234,000 per year in the next 20 years. Most extra households will be elderly sin-

³² Note however that we cannot look at the effect of mobility on the change in distance from the closest child as the distance before the move is not available.

³³ See also Roan and Raley (1996).

Table 9

Living less than 25 km from closest independent child, by family type, for mobile and non-mobile households.

Family type in $t - 1$ and t		% living < 25 km (1)	Estimated parameter (2)
Couple in $t - 1$ and t	Mobile	61.1	Ref.
	Non-mobile	69.6	0.476*** (0.163)
Widow in $t - 1$ and t	Mobile	76.9	-0.160 (0.336)
	Non-mobile	73.7	-0.278 (0.214)
Single or divorced in $t - 1$ and t	Mobile	62.4	0.334 (0.270)
	Non-mobile	64.4	0.205 (0.189)
Three people or more in $t - 1$	Mobile	82.1	0.706* (0.365)
	Non-mobile	74.4	0.649*** (0.180)
Couple in $t - 1$ widowed in t	Mobile	84.5	0.827** (0.377)
	Non-mobile	71.8	0.166 (0.206)
Number of observations			6225

Source: Authors' computation from the 2002 Housing Survey, INSEE.

Note: Sample of households whose head is retired or inactive and aged 60–84 in 1998 with at least one child who lives independently, and no child at home. We estimate a logit model of having a child living less than 25 km from the household (col. 2). Controls are age groups in $t - 1$, sex, education level, housing type and tenure in $t - 1$, population in municipality in $t - 1$ and log income in t .

* Significant at 10%.

** Significant at 5%.

*** Significant at 1%.

gle-person households. Persons aged 60 and over living alone will account for 45% of additional households between 2006 and 2010 and for 60% between 2026 and 2030. According to DESTINIE, 15% of the additional one-person households aged 60 and over will be widows. This

represents around 18,500 additional widows per year on average over the next 20 years.

In order to turn additional widows into a potential demand for new constructions, more assumptions have to be made. First we ignore the construction for second homes and replacement, and assume that each additional household needs one additional home. Under these assumptions, additional widows represent 8% of new constructions. We can also assess what kind of dwellings is needed. We first approximate the breakdown of new constructions by type over the next 20 years using the information we have on the breakdown of new constructions in 2002. In 2002, 34% of new dwellings were apartments (66% were houses) and 17% had one or two rooms. We then assume that the residential behavior of widows observed over the 1998–2002 period will remain the same over the period up to 2030. We propose two benchmark scenarios.

In scenario (1), we assume that the flow of additional widowed one-person households has the same housing demand as the mobile recently widowed in 2002. Hence, 37% of them choose apartments, which translates into an extra demand of 6800 apartment units per year. This demand accounts for 9% of the additional demand of apartment units on average over the next 20 years. This figure is an upper bound. In scenario (2), we assume that the flow of additional widowed one-person households behaves like the mobile widows in 2002. Twenty percent of them would choose an apartment, which translates into a demand for 3700 apartments units per year. This demand accounts for 5% of the additional demand for apartment units on average over the next 20 years. This is a lower bound.

The same kind of computations is conducted by dwelling size. Units with one or two rooms account for 17% of new constructions. The proportion of additional widows occupying a small dwelling is between 28% (scenario 2) and 40% (scenario 1). They correspond to 5100–7400 additional apartment units per year, that is between 13% and 19% of the new construction of small units.

Note that the proportion of widows among additional households is much lower in the beginning of the period when most new elderly one-person households will be divorced or single individuals, but it will reach 35% of the new one-person households aged 60+ around 2030. Hence the bulk of our widowhood effect on the housing market will take place after 2020 as the baby-boomers reach the age of widowhood. Indeed at the end of the period, up to a quarter of apartments and half of the units with one or two rooms will have to be built for widows.

Such rough computations remain tentative, as the types of new housing built are likely to evolve under the pressure of additional demand. Indeed, the proportion of apartments among new constructions has increased since 2002 reaching 47% in 2008, and the proportion of small units has increased to 24%. This reduces the relative weight of widows' demand on each sub-market. On the other hand, non-widowed single-person households tend to occupy apartments and small units even more than widows. Overall, the ageing of the baby-boomers together with the death of their spouses is likely to significantly affect the housing market.

7. Conclusion

We studied the effect of widowhood on mobility, housing, and location choices. Empirical tests using the French Housing Surveys show that the residential mobility of recent widows is around 90% higher than for couples. It is also higher than for long-term widows, suggesting that housing adjustments occur within 4 years after the loss of the spouse. The mobility of recent widows increases after age 80 and is more likely when they have children.

When they move, recent widows are more likely than couples to downsize, to switch from owning to renting, to exchange a house for an apartment, and to live in a larger municipality. Finally, mobile recent widows mention more often that they moved to live closer to their family and to reduce the number of rooms. In fact, they tend to live closer to their children than non-mobile recent widows and couples, even if they seldom co-reside with their children.

Overall, these results suggest that widows downsize to adjust their dwelling to the income loss due to widowhood and to their current or anticipated need for care. Downsizing usually cuts down housing maintenance tasks. Apartments are also easier to manage than houses, and so is renting compared to owning. Living closer to a child and in a larger municipality are some means of facilitating access to care. The higher residential mobility of the oldest recent widows may point to a need for more care as their health declines and disability risk increases.

As baby-boomers get older, their residential choices after the loss of their spouses will have an impact on the housing market. Our simulations show that a significant fraction of the demand for apartments and small units will come from widows, especially after 2020. This new demand will have an effect on construction and, if not fully anticipated, on the relative prices of the various types of housing units. Residential choices of widows will also have an impact on the way long term care of the elderly is financed and delivered. Accounting for the behavior of widows in a general equilibrium model of the housing market including institutions remains a topic for future research.

A limit to our analysis is that we could not separately identify the various channels by which the existence of children may affect the mobility and housing choices of their widowed parent. A widow may move either to get closer to care-providing children, or because she has to move out to share the deceased spouse's estate. We found many indirect hints pointing towards care by children. However, it would be interesting to measure how the rules of intergenerational transfer may trigger mobility. This is another topic for future research.

Acknowledgments

We are grateful to Catherine Bonvalet, Anne Solaz, Joëlle Gaymu, François-Charles Wolff, as well as to two anonymous referees, for their useful comments.

Appendix. Widows do not move to live with their children

Moving to coreside with a child could be a way for a widow to adjust her housing consumption (Börsch-Supan, 1990). We ignore such moves in this paper, arguing that they are very rare. We can identify whether a household is likely to include a widowed mother who moved in by using three criteria. Firstly, the household must include a 60- to 84-year-old widow who is not the reference person. Secondly, the household size must have increased by one in the four-year period before the survey date. Thirdly, this increase must not be due to obvious demographic reasons unrelated to the arrival of a widow, such as a birth or the household formation.

In our 2002 data, 258 households include a widow aged between 60 and 84 years old who is not the reference person (first criterion). Among them, only 33 households had increased their size by one (second criterion). Finally, only 14 of them are likely to have experienced the arrival of a widow (third criterion), and hence meet the three criteria. Only very few widows move in with their children after their spouse's death.

References

- Angelini, V., Laferrère, A. 2008. Home, houses and residential mobility. In: Börsch-Supan, A., et al., (Eds.), *Health, Ageing and Retirement in Europe (2004–2007). Starting the Longitudinal Dimension*, Mannheim Research Institute for the Economics of Aging, pp. 99–107.
- Ahn, N. 2004. Economic consequences of widowhood in Europe: cross-country and gender differences. FEDEA Working paper 27.
- Arrondel, L., Laferrère, A., 2001. Taxation and wealth transmission in France. *Journal of Public Economics* 79, 3–33.
- Bonnet, C., Gobillon, L., Laferrère, A. 2008. The housing and location choices of widows. CREST Working Paper 12.
- Börsch-Supan, A., 1990. A dynamic analysis of household dissolution and living arrangement transitions by elderly Americans. In: Wise, D.A. (Ed.), *Issues in the Economics of Aging*. The University of Chicago Press, Chicago, pp. 89–120.
- Börsch-Supan, A., Hajivassiliou, V., Kotlikoff, L., Norris, J., 1992. Health, children, and elderly living arrangements; a multiperiod-multinomial probit model with unobserved heterogeneity and autocorrelated error. In: Wise, D.A. (Ed.), *Topics in the Economics of Aging*. The University of Chicago Press.
- Burkhauser, R.V., Giles, P., Lillard, D.R., Schwarze, J., 2005. Until death do us part: an analysis of the economic well-being of widows in four countries. *The Journals of Gerontology Series B: Psychological Sciences and Social Sciences* 60, 238–246.
- Cambois, E., Désesquelles, A., Ravaud, J.F., 2003. The gender disability gap. *Population and Societies*, 386.
- Chappell, N.L., 1991. Living arrangements and sources of caregiving. *Journal of Gerontology* 46 (1), S1–S8.
- Chen, Y., Rosenthal, S., 2008. Local amenities and life-cycle migration: do people move for jobs or fun? *Journal of Urban Economics* 64 (3), 519–537.
- Chevan, A., 1995. Holding on and letting go. Residential mobility during widowhood. *Research on Aging* 17 (3), 278–302.
- Conseil d'Orientation des Retraités, 2008. *Retraite: droits familiaux et conjugués, 6ème Rapport du Conseil d'Orientation des Retraités*.
- Costa, D., 1999. A house of her own: old age assistance and the living arrangements of older nonmarried women. *Journal of Public Economics* 72 (1), 39–59.
- Delbès, C., Gaymu, J., 2005. Qui vit en institution? *Gérontologie et Société* 112, 13–24.
- Ermisch, J.F., Jenkins, S.P., 1999. Retirement and housing adjustment in later life: evidence from the British Household Panel Survey. *Labour Economics* 6, 311–333.
- Flippo, A., Le Blanc, D., Laferrère, A., 1999. De l'histoire individuelle à la structure des ménages. *Insee Première*, 649.
- Fontaine, R., Gramain, A., Wittwer, J., 2007. Les configurations d'aide familiales mobilisées autour des personnes âgées dépendantes en Europe. *Economie et Statistique* 403–404, 77–98.
- Freedman, V.A., 1996. Family structure and the risk of nursing home admission. *Journals of Gerontology, Series B: Psychological Sciences and Social Sciences* 51 (2), S61–S69.
- Glaser, K., Tomassini, C., 2000. Proximity of older women to their children. A comparison of Britain and Italy. *The Gerontologist* 40, 729–737.
- Gobillon, L., 2001. Emploi, logement et mobilité résidentielle. *Economie et Statistique* 349–350, 77–98.
- Gobillon, L., Le Blanc, D., 2004. L'impact des contraintes d'emprunt sur la mobilité résidentielle et les choix entre location et propriété. *Annales d'Economie et de Statistique* 74, 15–46.
- Gobillon, L., Wolff, F.C., 1990. Housing and location choices of retiring households: evidence from France. *Urban Studies*, forthcoming.
- Graves, P., Knapp, T., 1988. Mobility behavior of the elderly. *Journal of Urban Economics* 24 (1), 1–8.
- Grossman, S., Laroque, G., 1990. Asset pricing and optimal portfolio choice in the presence of illiquid durable consumption goods. *Econometrica* 58 (1), 25–52.
- Heiss, F., Hurd, M., Börsch-Supan, A., 2003. Healthy, wealthy and knowing where to live: predicted trajectories of health, wealth and living arrangements among the oldest old. NBER Working Paper 9897.
- Iacovou, M., 2000. The living arrangements of Elderly Europeans. ISER Working Paper 2000-09.
- Jacquot, A., 2007. Projections de ménages pour la France métropolitaine à l'horizon 2030. *Insee Résultats* 2007, p. 60. <http://www.insee.fr/fr/ppp/ir/accueil.asp?page=projmen2030/dd/projmen2030.htm>.
- Jusot, F., 2004. Mortalité et inégalités de revenu en France. Working paper DELTA 2004-32.
- Kalogirou, S., Murphy, M., 2006. Marital status of people aged 75 and over in nine EU countries in the period 2000–2030. *European Journal of Ageing* 3 (2), 74–81.
- Laditka, J.N., Laditka, S.B., 2001. Adult children helping older parents. *Research on Aging* 23 (4), 429–456.
- Laferrère, A., 2001. Marriage settlement. *Scandinavian Journal of Economics* 103, 485–504.
- Laferrère, A., 2005. Old age and housing: dissaving, adjusting consumption, and the role of children. Working Paper.
- Laferrère, A., 2006. Vieillesse et logement: désépargne, adaptation de la consommation et rôle des enfants. *Retraite et Société* 47, 66–108.
- Le Blanc, D., Laferrère, A., 2001. The Effects of public social housing on households' consumption in France. *Journal of Housing Economics* 10, 429–455.
- Macunovich, D., Easterlin, R., Schaeffer, C., Crimmins, E., 1995. Echoes of the baby boom and bust: recent and prospective changes in living alone among elderly widows in the United States. *Demography* 32 (1), 17–28.
- Nelson, J., 1988. Household economics of scale in consumption: theory and evidence. *Econometrica* 56 (6), 1301–1314.
- Ogg, J., Renaut, S., 2005. Le soutien familial intergénérationnel dans l'Europe élargie. *Retraite et Société* 46, 30–57.
- Roan, C.L., Raley, R.K., 1996. Intergenerational coresidence and contact: a longitudinal analysis of adult children's response to their mother's widowhood. *Journal of Marriage and the Family* 58 (3), 708–717.
- Roback, J., 1982. Wages, rents, and the quality of life. *The Journal of Political Economy* 90 (6), 1257–1278.
- Tatsiramos, K., 2006. Residential Mobility and Housing Adjustment of Older Households in Europe. IZA Working Paper 2435.
- Train, K., 2002. *Discrete Choice with Simulation*. Cambridge University Press. 342p.
- Venti, S.F., Wise, D.A., 1987. *Ageing, Moving, and Housing Wealth*. NBER Working Paper 2324.
- Venti, S.F., Wise, D.A., 2001. *Ageing and Housing Equity: Another Look*. NBER Working Paper 8608.