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HOUSEHOLDS IN THE REDUCTION STAGE AND HOUSING NEEDS: A dynamic macro-simulation for The Netherlands up to the year 2000

Pieter Hooimeijer

1. Introduction

The post-war baby boom will have reached the reduction stage of the household life cycle in the year 2000. The absolute numbers and relative share of these households will therefore increase considerably. This will have a sweeping impact on the functioning of the housing market as a whole. The level of residential mobility is very low in the latter half of adult life and the filtering process within the existing housing stock is therefore expected to become increasingly characterised by inertia.

However, elaborate insight into the possible effects of the growth of the number of households in the reduction stage is lacking, because the housing market behaviour of this group has rarely been analysed. The research has tended to concentrate on the housing needs of expanding families or of the very old.

On top of this, it may be expected that the households from which the children are leaving or have left the parental home by the year 2000 will differ from the present households in this stage of the life cycle in two respects:

- because of the drop in fertility rates during the sixties, they will have had less children and will therefore reach the empty-nest stage at an earlier age. The number of singles will also increase due to the rising divorce rates in The Netherlands in the seventies;
- also the housing situation of these households will differ to a great extent, for instance owner-occupancy in The Netherlands has risen from 26% in 1950 to 43% in the eighties.

As both the household composition and the housing situation determine the level of residential mobility and the housing choice to a large extent, the housing market behaviour of the cohorts which enter the reduction stage in the coming decades will differ from those of the households which are in this stage at the present moment.

In this contribution a model will be presented which takes these cohort-effects into account, by simulating the dynamics in both the demographic and the housing characteristics simultaneously.

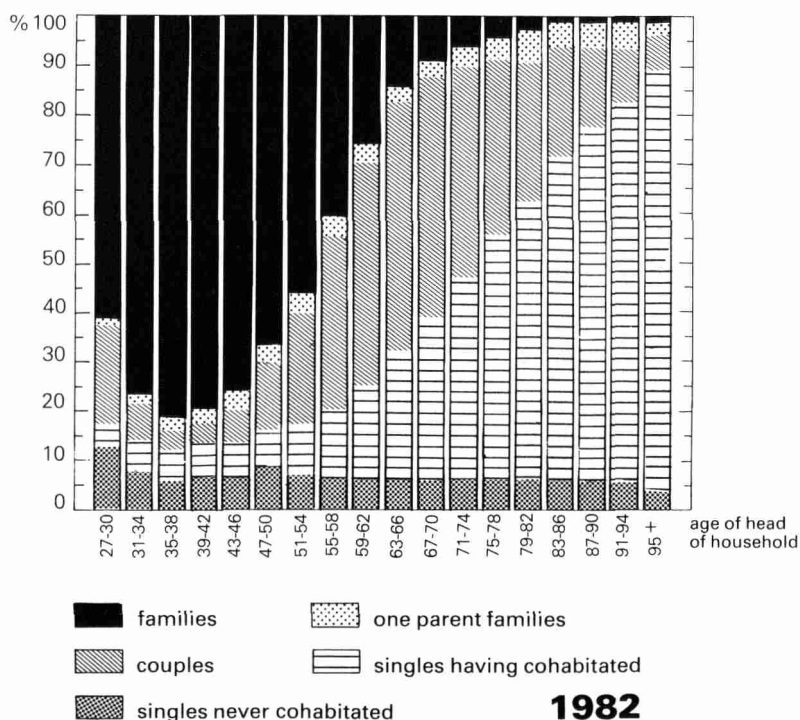
2. Households in the reduction stage and the housing career

The position and behaviour on the housing market of a household are highly dependent on its composition. Housing needs are closely related to the stage in the household life cycle and transitions from one stage to another are

often attended by moves to another dwelling. The traditional family life cycle has met some severe criticism over the last decade. The reason for this criticism is the growing number of households, such as non-married cohabitating couples, one parent families and divorced singles, which do not fit in the traditional typology (Trost, 1977). Also the instrumental value of the concept has been doubted. Research shows that age of the household head and the presence or absence of children are more important predictors of housing market behaviour (Nock, 1979).

In Figure 1 the composition of the household is depicted in relation to the age of the household head (the female in this study). The average age at which the reduction in household size commences is 47 years. Although this conclusion was derived from a separate analysis of the leaving of the parental home by the eldest child in relation to the age of the mother, it can also be seen from the figure. Up to the age of 46, about 80% of all households still have children living at home. This percentage drops to about 10% at the age of 67. This is the period in which child-launching is the dominant demographic transition. After 67 years the transition to widowhood becomes more important. The research will concentrate on the age group of 47 years or older for which household size is clearly reducing. Its housing market behaviour will be compared to that of the 27-46 years olds. Within the older agegroup sometimes a distinction will be made between those under or over 67.

FIGURE 1. Household composition by age of the (female) head.



Source: WBO81.

TABLE 1. The housing distribution of the 27+ year-olds at the start of the simulation (October 1981).

Type of dwelling (submarket)	number (x 1000)	percent
1 rental, multi-family, 3 rooms or less	776.7	15.8
2 rental, multi-family, 4 rooms or more	602.5	12.2
3 rental, single-family, 3 rooms or less	247.0	5.0
4 rental, single-family, 4 rooms	710.1	14.4
5 rental, single-family, 5 rooms or more	527.0	10.7
6 owner-occupied, 3 rooms or less	273.4	5.5
7 owner-occupied, 4 rooms	735.5	14.9
8 owner-occupied, 5 rooms or more	1053.9	21.3
total	4926.2	100.0

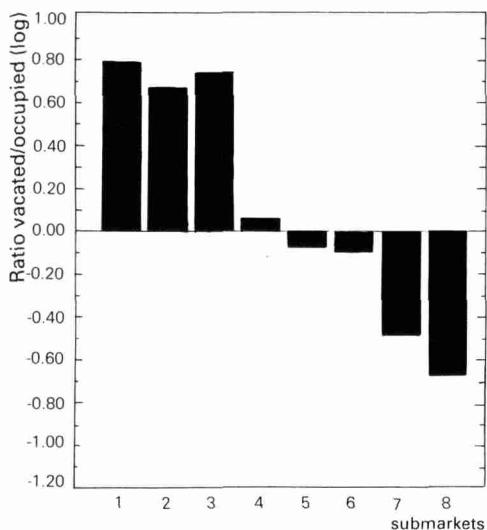
Source: WBO81.

The relationship between the changing household composition over the life course and the housing market behaviour can be elucidated by viewing the latter as a progression through a housing career (Kendig, 1984). This progression is discontinuous and breakpoints are formed by moves from one dwelling to another. Young households filter up to progressively attractive dwelling types. On the basis of earlier research (Scholten & Hooimeijer, 1985), the total housing stock has been partitioned into eight submarkets which represent a hierarchy of dwelling types. This hierarchy is shown in Table 1. As can be gathered from this table, moves up the hierarchy are from small to large housing, from multi-family to single-family structures and from rental to owner-occupied accommodation.

To test whether this hierarchy reflects the making of a housing career, moves between the dwelling types contained in the typology have been analysed separately for young (up to 47 years of age), and elderly households (aged 47 years or over). The results are shown in Figure 2.

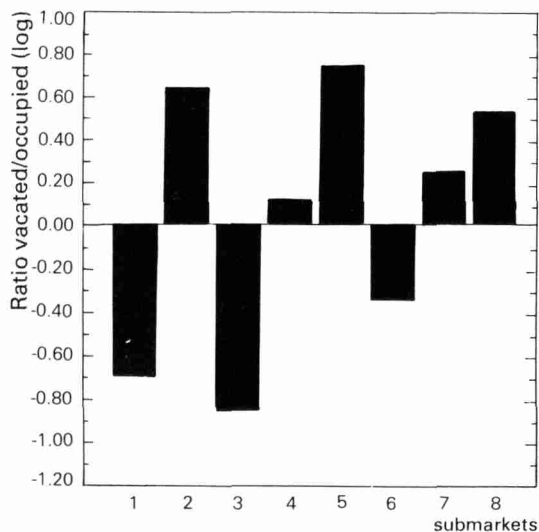
The figure depicts the logarithm of the ratio of vacated to occupied dwellings of those households which moved in the period 1978 up to 1982. Young households tend to move into spacious owner-occupied dwellings (the ratio is highly negative in submarkets 7 and 8) and to move out of small and multi-family rental dwellings (the ratio is positive in the first three submarkets). The idea of filtering up shows up very clearly. Older households on the contrary show positive ratios in all submarkets with dwellings having four rooms or more, whether they are owner-occupied or not and negative ratios in submarkets contained of small dwellings. The reduction in household size is clearly accompanied by moves from large to small dwellings.

FIGURE 2A. The ratio of vacated to occupied dwellings (logarithm) in the period 1978-1981 of young households. (The codes indicating submarkets correspond to those in Table 1.)



Source: WBO81.

FIGURE 2B. The ratio of vacated to occupied dwellings (logarithm) in the period 1978-1981 of elderly households. (The codes indicating submarkets correspond to those in Table 1.)



Source: WBO81.

3. Distribution, mobility, and housing choice

The filtering of younger and older households seems to be positively related. Elderly households create a net supply in spacious submarkets for which younger households show an excess demand. However, to establish the extent to which elderly households create opportunities for younger households to advance in their housing career, the filtering process of the first group will have to be studied in more detail. Three questions are crucial to the understanding of this process. Which dwellings do the older households occupy? To what extent are these vacated and which types of dwellings should be supplied to older households to trigger these moves? In the following a short description of the results of some analyses aimed at answering these questions will be presented. A more detailed description can be found in Hooimeijer, Clark & Dieleman (1986). The data are derived from the Housing Needs Survey (*Woningbehoefte-onderzoek*, 1981), collected under the responsibility of the Dutch Central Bureau of Statistics (CBS). The questionnaire was carried out at the end of 1981 and included numerous items on household characteristics and the housingmarket behaviour of these households in the four years preceding the time of the interview.

3.1. The housing distribution

The housing distribution of various types of households is a cross-section of their housing career at a given moment. However, this cross-section is an expression of two different effects. It shows that elderly households will have made further progress in their housing career, but it also expresses the changes in housing market conditions which determine the level of advancement in the housing career of successive cohorts.

It can be gathered from Table 2, that the relation between household composition and the housing distribution is very close. Family-households are near the top of the housing career, judging from their overrepresentation in spacious owner-occupied dwellings. It is striking that younger families own their house more often than older families. This is probably due to the cohort-effect mentioned before. During the seventies the owner-occupied sector has become more accessible, especially to younger households. This effect becomes very clear if we compare the two person households from each age group. Slightly over 50% of the young households is owner-occupier, while this is true for only 37.5% of elderly two person households.

3.2. The residential mobility

The rate to which houses are vacated or the level of residential mobility varies with the characteristics of the dwelling as well as its inhabitants (Clark, Deurloo & Dieleman, 1984). Table 3 shows the percentage of movers from different types of dwellings among the various households distinguished in 1982 in the four years preceding this year.

The total mobility rate is highest among young two person households (33%) and lowest among older families (9%). Within each age group it is the household composition that determines which dwellings are vacated. Young two person households and families show high mobility rates if they live in small dwellings, while young singles show higher rates from large dwellings. The mobility rate of older singles living in owner-occupied dwellings having 5 rooms or more is twice as high as the rate of older families in the same submarket. The extent to which older households create potential opportunities for younger households by vacating spacious dwellings, is therefore highly dependent on whether they have children living in and whether they are widowed. The actual opportunities created, do not only depend on whether

TABLE 2. The housing distribution per household type in 1978 (in percentages).

	Submarket								total %	number x 1000
	rent mult small	rent mult large	rent sing small	rent sing medium	rent sing large	owner occup small	owner occup medium	owner occup large		
Household										
Young single	46.8	11.5	6.9	5.2	3.3	12.5	8.6	5.2	100.0	220.4
Young couple	15.9	12.4	3.0	10.0	5.1	10.7	24.4	18.5	100.0	219.2
Young family	3.9	10.8	1.2	16.2	13.8	2.2	18.5	33.4	100.0	1553.6
Elder family	4.0	11.9	2.3	17.9	17.1	2.8	13.4	30.6	100.0	785.1
Elder couple	17.1	12.7	8.2	15.9	8.5	7.3	14.8	15.4	100.0	750.3
Elder single	37.3	11.0	12.6	9.4	5.0	9.3	8.0	7.4	100.0	664.5
Total	14.5	11.5	4.9	11.9	11.9	5.3	15.0	25.3	100.0	4193.1

Source: WBO81.

TABLE 3. The percentage of mobile households per submarket and household type (1978-1981).

	Submarket								total
	rent mult small	rent mult large	rent sing small	rent sing medium	rent sing large	owner occup small	owner occup medium	owner occup large	
Household									
Young single	24	35	29	23	41	11	18	29	29
Young couple	50	42	44	28	38	25	19	18	33
Young family	48	38	46	22	21	27	16	13	22
Elder family	14	18	13	8	9	7	7	7	9
Elder couple	12	17	11	10	15	9	8	11	12
Elder single	10	17	9	14	17	8	13	14	12

Source: WBO81.

dwellings are vacated by older households. They also depend on the housing choice of these households. If they occupy dwellings in the same submarkets as have been vacated, then there is no positive effect for younger cohorts.

3.3. The housing choice

The analyses of the housing choices made by elderly households showed tremendous variation of these choices with the household composition and the age of the head. The results are depicted in Table 4.

Families still opt for owner-occupation to a large extent (45%) and hardly move into small dwellings (15%). Among the two person households there is a striking difference between those aged between 47 and 66 and those over 66 years of age. Half of the younger group moves into a small dwelling (45%), among the elder group this percentage is almost as high as 75%. Also among the elderly singles this percentages varies with age. Three out of four singles aged 66 years or less occupy a small dwelling, while more than 90% of those aged 67 or over have three rooms or less after a move. An inspection of the transition matrices of which the entries in Table 4 are the marginals show the type of dwelling choosen is also highly dependent on the type of dwelling the household occupied prior to the move.

TABLE 4. The housing choice of elderly households 1978-1981 (in percentages per type of household).

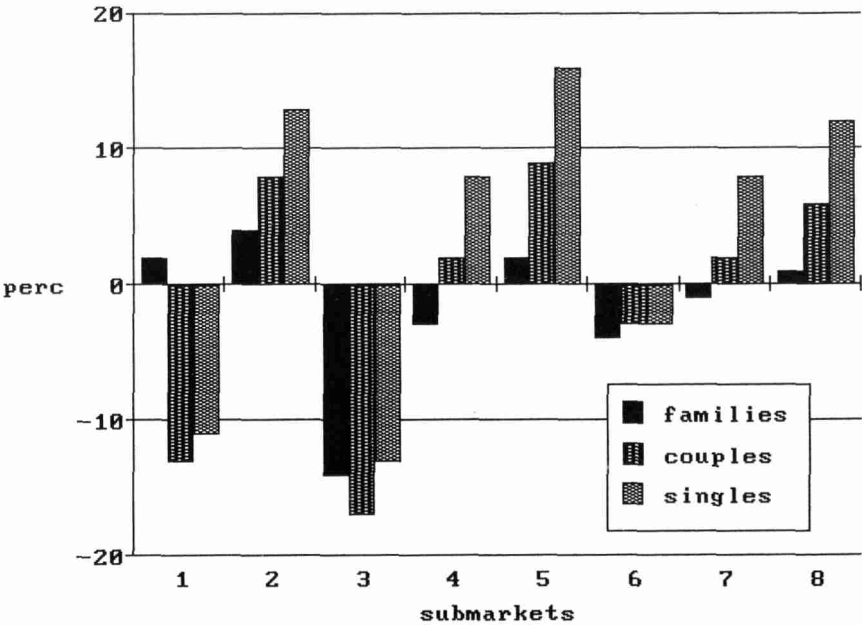
	Submarket								
	rent mult small	rent mult large	rent sing small	rent sing medium	rent sing large	owner occup small	owner occup medium	owner occup large	total
Household									
Families 47+	6.8	18.0	5.9	20.1	13.7	3.3	11.3	20.9	100.0
Couples 47-66	25.3	11.3	13.3	13.6	5.8	7.5	13.7	9.6	100.0
Couples 67+	45.8	8.9	22.0	8.4	2.0	6.5	3.6	2.8	100.0
Singles 47-66	46.4	9.2	16.9	7.0	1.3	11.2	4.4	3.6	100.0
Singles 67+	63.4	1.9	23.3	2.7	-	5.4	2.8	0.4	100.0

Source: WBO81.

3.4. The unstable balance of supply and demand

From the foregoing analyses it has become clear that the balance of supply and demand, which is the result of the filtering of elderly households is determined to a large extent by two factors, viz. the demographic characteristics of these households and their housing distribution.

FIGURE 3. The balance of supply (+) and demand (-) of elderly households (in % of the stock occupied in 1978).



Source: WBO81.

Both the rate at which dwellings are vacated, leading to supply and the housing choices made by elderly households, their demand, vary with the factors mentioned. In Figure 3 this balance is shown for each of the three types of elderly households separately. The figure depicts the net result of moves from and into the eight submarkets as a percentage of the number of households occupying a dwelling in that submarket at the beginning of the period.

The figure is supply oriented. A **positive** percentage indicates a supply surplus, the number of households in this submarket has decreased as a net result of their moves, leaving dwellings behind that can be occupied by other types of households. A **negative** percentage means that the number of households in this submarket has increased, indicating a demand surplus. For instance it shows that 16% of all large single-family rental dwellings occupied by elderly singles, become available to other types of households in a four year period. On the other hand the supply deficit of these singles is large in small rental submarkets (-11% in multi-family and -13% in single-family submarkets).

As is obvious from this figure the total balance of supply and demand of elderly household will be altered completely if the relative share of two person households or of singles increases or decreases. Singles and couples create supply in spacious submarkets, exerting extra demand for small dwellings. Among elderly couples, the balance of supply and demand is almost even in any submarket.

Looking to the future two things are obvious. First the demographic characteristics of the households which will be in the reduction stage of the household cycle by the year 2000 will be very different from those of the households which were in that stage in the early eighties. Secondly, also their housing distribution will be different, as it has been shown that younger cohorts tend to be owner-occupiers instead of renters, which was more common among their parents. In order to establish the impact of the growing number of persons in the 'third age' up to the year 2000, both the demographic changes and the filtering of the households aged 27-47 in 1982 will have to be simulated until this year.

4. A dynamic macro-simulation model

Sophisticated data on households and their dwellings become available every fourth year in The Netherlands, when the Dutch Census Bureau carries out the Housing Needs Survey. As the Census has been abolished after 1971, this is the only data-set on the national level which contains information on non-married cohabitating couples, on children living independent or with their parents, on the types of dwellings occupied by various types of households, etc. The sample is taken from the total Dutch population aged 18 or over. Information about the household situation of the respondents is recorded at the time of the interview, but also some retrospective items are included, as for instance the year of the last marriage or last divorce and the year in which the respondent left his or her parental home.

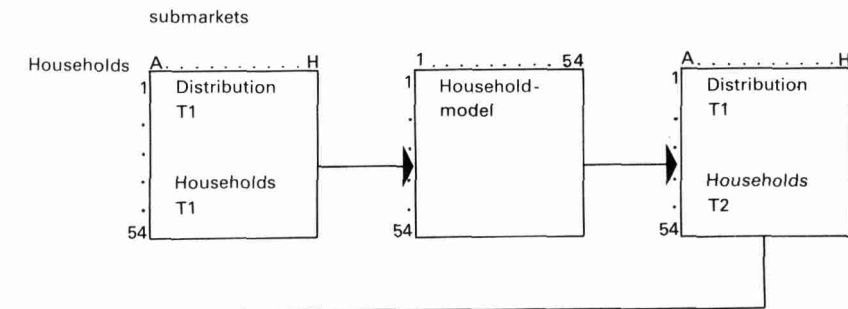
Details on the housing situation are also recorded at the time of the interview. However if respondents moved in the four years preceding the interview, questions were asked about the period in which the move took place and about the housing situation prior to the move. The last survey available to researchers was carried out in 1981/1982. The next survey, which was held in the beginning of 1986 will be available to researchers shortly.

The structure of the data-set has some implications for the way in which demographic change and filtering in the housing market has been

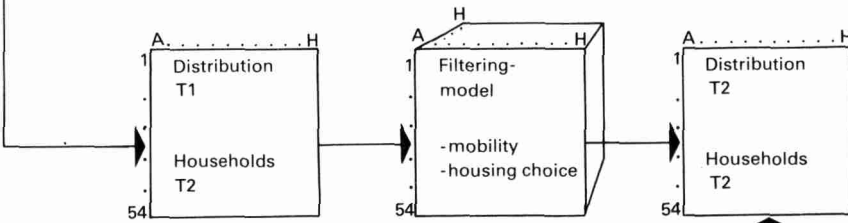
modelled. As the mobility was only known in retrospect, the model had to be structured in such a way that the demographic change was simulated first, after which the filtering could be simulated employing recruitment probabilities. The model consists of three parts which have been depicted in Figure 4 and will be described briefly below.

FIGURE 4. General outline of the model.

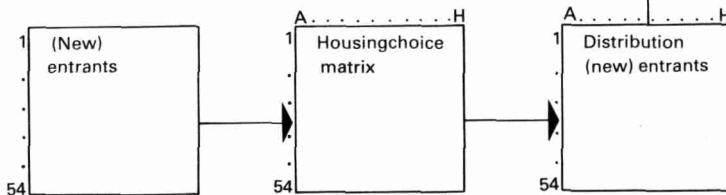
A. HOUSEHOLDSIMULATION



B. HOUSING REDISTRIBUTION SIMULATION



C. HOUSING DISTRIBUTION (NEW) HOUSEHOLDS



4.1. A general description of the model

The model can be characterised as a dynamic macro-simulation model, which means that cohorts of groups are the unit of analysis instead of individuals. The general outline of the model is very simple as can be seen from Figure 4.

Part A

The starting point is the housing distribution matrix of households aged 27 or over in the beginning of 1982. The total group of households has been split up into 18 age groups (4 years each) and within each age group three household positions, singles, two-persons and families are distinguished. This leads to 54 different household groups which are distributed over the eight housing submarkets which have been defined before. This distribution is contained in the first matrix in Figure 4. Next the transitions between various household positions are simulated by means of the household submodel. A more detailed description of the household submodel will be given in the next paragraph. Running the submodel produces the changes in household position four years later. So the first part of the model ages the population by four years and simulates household change. The result is the matrix containing the housing distribution at time T1 of the households at time T2. This reflects the **previous** housing situation of the households at time T2.

Part B

In the second part the housing distribution is being adjusted by estimating the mobility and the housing choice of the various household groups per submarket. Two types of probabilities are applied:

- the probability that a household having a specific age and composition at time T2, which occupied a certain dwelling type at time T1, will move in the period between T1 and T2;
- the probability that a household with a specific age and compositions which moved from a certain dwelling type in the period T1 to T2, will occupy a dwelling in one of the submarkets A to H.

The result of this filtering submodel is the housing distribution at time T2 of the households which occupied an independent dwelling at time T1.

Part C

In the third part new households which are formed during the period T1 to T2, are allocated a dwelling on the basis of the age of the households head and the composition of the household. This can either be persons who were living in (with their parents) at time T1 or households which are the result of a split up of an existing household at T1. Their distribution is added to the matrix which resulted from part B, the total matrix being the starting point for the next four year run of the model and so forth.

The four year period which was taken for every run of the model, has been chosen for practical reasons. It offers the possibility to check the results against the data derived from the next Housing Needs Survey. Also a period of four year seemed short enough to avoid heterogeneity in the recruitment probabilities which are used to estimate the level of residential mobility. The problem of heterogeneity in the probabilities employed in the filtering model seems an important one. For instance should not income be included in the estimation of the mobility rates and the housing choice? To check whether the right dimensions (age, household composition and previous dwelling) have been chosen, a formal analysis of the filtering of elderly households has been performed. A rather rigorous strategy has been adopted to select the best subset a variables out of a large number, using a multi-

variate framework. The results of these analyses have been reported elsewhere (Hooimeijer, Dieleman & Van Dam, 1987) and are in support of the choices made here.

4.2. The household submodel

The household model used is an elaboration of an existing model, built by the Netherlands Institute for Applied Scientific Research, which was extended to include kinship relations beside partner relations. The base model, the PRIMOS-Household model is consistent with the 1985 national population forecast of the Central Bureau of Statistics (Heida & Gordijn, 1985). From the existing analyses it was clear that working with four year age groups would introduce heterogeneity in a number of transition probabilities. Therefore the household model was further disaggregated, using one-year cohorts for each sex separately and distinguishing six different household positions, viz. living with parents, singles, couples, full-families, one-parent families and singles having cohabitated. Apart from that the people not living in households, but in institutions were singled out. The relevant transitions are depicted in Figure 5, with the demographic occurrences which determine these transitions listed below.

From the transitions to institutions and the death rates of singles, the number of households leaving the housing market can be estimated. The housing supply which results from these transitions, will not be discussed in this contribution, because it is the subject of separate research.

To deal with the non-stationarity in the transition probabilities, the model contains various quantitative hypotheses relating to future levels of fertility, separation rates, etc. It was assumed that the demographic transitions did not depend on the housing situation.

5. The results for the year 2000

Running the model up to the year 2000 provides us with three sorts of information. The number of households in the reduction stage by that time and their household composition, the housing distribution of these households and the balance of supply and demand generated by the moves of these households in the four year period preceding this date.

FIGURE 5. Transitions in the household model.

Time t1	Time t2					
	Living in	Single	Couple	Family	One-Parent	Institutions
Living in		1	2	+	+	3
Single	+		4	+	+	3
Couple	+	5		6	+	3
Family	+	7	8		9	3
One parent	+	8	+	10		3

1 = leaving the parental home and become single

2 = leaving the parental home and cohabitat

3 = moves to Institutions

4 = cohabitation

5 = separation or death partner

6 = having a child

7 = separation of a family

8 = youngest child leaves the parental home

9 = separation or death of partner

10 = cohabitation

+

5.1. Number and composition of households

The number of households with a (female) head of 47 years or over will increase from 2.34 million in 1982 to 3.17 million in 2000. Due to the drop in fertility rates in the sixties and seventies the share of the two-person households within this group will grow considerably as Figure 6 shows.

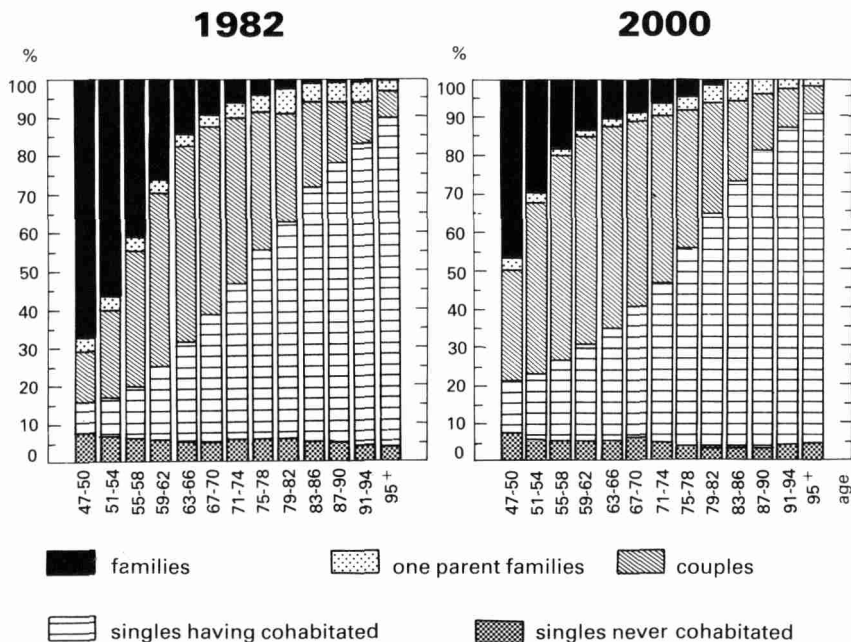
The number of elderly families will increase with only 80,000, while the number of couples increases with more than half a million.

5.2. The housing distribution

The housing distribution will also differ to a large extent from the one in 1982, as Table 5 shows.

Elderly families will occupy their own spacious home (4 rooms or more) in 55% of all cases (44% in 1982), and will be found less in multi-family structures (11% in 2000, 16% in 1982). Among the elderly couples the differences are even more striking 44% will be the owner of a spacious dwelling (30% in 1982), while only 20% will be in multi-family rental structure (also 30% in 1982). In absolute numbers the increase in couples living in spacious owner-occupied housing will be tremendous (from 600,000 in 1982 to 980,000 in 2000).

FIGURE 6. Changes in household composition 1982-2000.



Source: WBO81 and the model.

TABLE 5. The changing housing distribution between 1982 and 2000 (in percentages per household type).

		Submarket								total
		rent mult small	rent mult large	rent sing small	rent sing medium	rent sing large	owner occup small	owner occup medium	owner occup large	
Household										
Family	1982	3.6	11.9	1.7	17.0	17.4	2.4	13.3	31.9	100.0
47-66 y.	2000	2.7	7.6	1.4	15.6	13.1	2.4	19.0	38.2	100.0
Couple	1982	14.3	13.2	6.0	17.4	9.3	6.9	15.6	17.4	100.0
47-66 y.	2000	6.8	8.0	3.6	15.2	11.2	4.5	19.0	31.6	100.0
Single	1982	32.8	13.0	8.5	10.9	6.1	10.5	9.1	9.1	100.0
47-66 y.	2000	36.1	7.0	8.0	7.9	4.6	14.4	10.4	11.4	100.0
Family	1982	8.0	11.6	7.5	18.9	14.1	6.3	15.2	18.4	100.0
67+ y.	2000	6.7	10.1	3.8	19.2	15.1	3.9	13.9	27.3	100.0
Couple	1982	23.0	11.6	12.6	12.6	6.8	8.6	13.4	11.4	100.0
67+ y.	2000	20.2	9.5	9.7	15.5	8.5	6.0	12.6	18.0	100.0
Single	1982	40.2	9.7	14.8	8.5	4.3	8.6	7.2	6.6	100.0
67+ y.	2000	33.1	8.0	13.3	11.5	5.4	7.9	9.7	11.1	100.0

Source: WBO81 and the model.

5.3. The balance of supply and demand

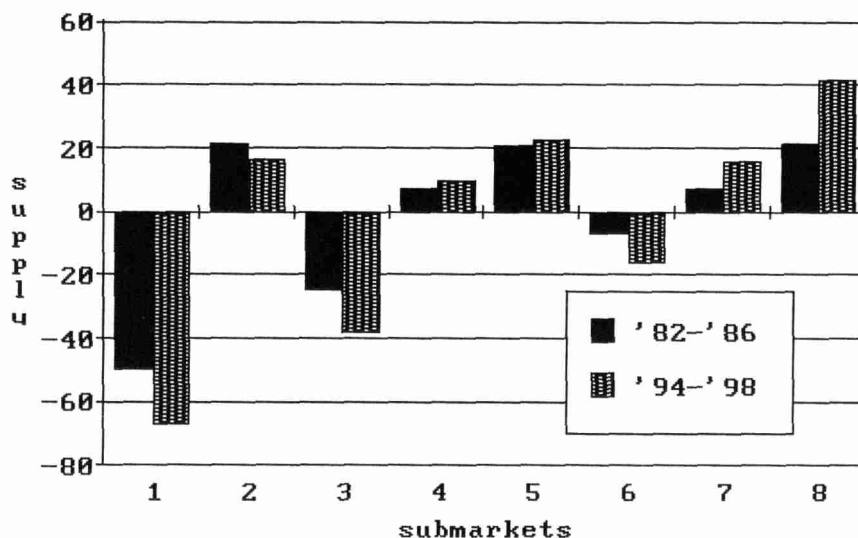
Elderly households occupy spacious owner-occupied dwellings in 2000. In these housing submarkets mobility tends to be low. Does this also mean that the housing market will be characterised by inertia by that time? To answer this question the balance of supply and demand is compared for the period 1982-1986 and the period 1994-1998. The result is depicted in Figure 7.

In absolute terms the supply surplus of large dwellings in the owner-occupier sector will increase considerably. This is a direct result of the changing household composition of the elderly between the two periods mentioned. Elderly households will be much smaller in the future. Their mobility rates are higher in the submarkets which have spacious dwellings. If they move, their housing choice is characterised by a demand for small dwellings. From the formal analyses mentioned in paragraph 4.1. it appeared that high income households showed the same preference with regard to the number of rooms as low income households, once we controlled for the tenure of the previous dwelling (as has been done in the model). However, it is likely that elderly households will demand more square meters per room in the future, this attribute is not contained in the choice set.

As can be seen from Figure 7 the demand surpluses for these group will also increase to a large extent. In relative terms this increase will be largest in the demand for small owner-occupier dwelling and in single-family rental dwellings. These submarkets comprise only a very limited proportion of the present housing stock, as can be seen in Table 1.

By the end of this century the demand surplus of elderly households for small dwellings will be about 100,000 in a four year period. It is estimated that the total amount of dwellings that can be added to the stock at the end of this century is in the order of 200,000 per four years. As not every small dwelling is suitable for elderly people to live in, a shortage of dwellings having less than four rooms can be expected. Apart from adapting existing dwellings within the stock to suit the needs of the elderly, this demand will have to be met by building new dwellings. Only if the building program is altered accordingly, the supply surpluses created by the moves of elderly households in the housing submarkets which are high in demand among younger households, will come about.

FIGURE 7. Changing balance of supply (+) and demand (-) by the elderly.



6. Conclusion

Contrary to the expectations of many, the growing number of households in the third age by the year 2000, will not necessarily cause an increased inertia on the housing market. It appears from the simulation of the housing market behaviour of the households which will have reached the reduction stage of the life cycle at the end of this century, that the filtering of the elderly differs to a large extent from the situation in the early eighties.

Due to the changing household composition of these elderly households the overall mobility rate will be higher than expected, especially from those submarkets which are high in demand by younger households. However, this will only be the case, if the housing demand of the elderly households is satisfied, mostly by means of new construction, or by means of reconstruction of existing dwellings to make them more suitable for the elderly to live in.

Although the model does provide us with some new insights, it also has some limitations. The most far-reaching assumption on which the model is based, is that the supply of new dwellings will meet the demand surplus which arises in the housing stock in any given four years period. The model does not, as yet, include any explicit supply constraints. The second assumption pertains to the stationarity of the probabilities used to estimate the rate of residential mobility and housing choice. In the model these probabilities depend on age, household composition and the former housing situation. A formal analysis showed that these probabilities were very homogeneous. However, it might be possible that, among the various groups defined, home-ownership for instance will become more popular due to economic developments. The model only simulates the effects of demographic changes and does not include any economic influences. The third and perhaps most important drawback of the model is its lack of spatial disaggregation. People do not only want particular dwellings, they also want them in parti-

cular places. The model described here, should therefore be regarded as a starting point, elucidating the methodology of dynamic macro-simulation of housing market behaviour. The present research aims at a refinement of the model by bringing in supply constraints, parameterising non-stationarity if necessary, and disaggregating it to the level of the local housing market area.

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