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CHANGING RESIDENTIAL PATTERNS IN METROPOLITAN SUBAREAS IN THE NETHERLANDS DURING THE EIGHTIES

Pieter C.J. Everaers and Sako Musterd

1 Introduction: changing positions of households and areas

Metropolitan subareas and types of households are mutually related. The areas differ in terms of their site and situation. That is, the characteristics of the place itself (the site) are specific; these site characteristics include the service level or the social composition, for instance. In addition, the relative location (situation) is specific; this refers to the location relative to the city centre or other places of attraction. Therefore, each subarea offers a set of conditions. This set will be more appropriate to or attainable by some types of households than others. As a result, *sorting and shifting processes are continually going on.*

Of course, these processes cannot be described simply in terms of choice and orientation of the households. To do so would result in some sort of congregation and produce a nicely differentiated urban mosaic. Involuntary spatial processes also occur. Sometimes constraints dominate the processes, resulting in segregation or perhaps even social polarization in the urban area.

The relation between types of household and specific urban subareas implies a continuing process of voluntary or involuntary adaptation. Changing positions as far as household type is concerned and change in the physical and social urban fabric may trigger residential mobility and urban change. It should be kept in mind that the changing structure is also influenced by immobile but changing households. To explain the changing positions of households and the changing fabric of urban areas, short-term and long term shifts in (sub)areas and in society at large have to be taken into account.

For a long time, classic filtering theory was the most adequate perspective on the changing positions of households and dwellings or areas. According to this theory, households improve their housing situation by moving to a larger and newer dwelling when the household enters a new phase (cf. Robson, 1975). The newer and more attractive dwellings were assumed to be located near the urban fringe and in suburban areas. A typical filtering process would entail moving up, with each step in the family cycle, from an old small dwelling close to the city center (single-

person household), via a larger house in a newer area (young couple) to a large new dwelling in a suburban community (settled family household). At the same time, the dwellings and residential areas left behind would undergo the opposite process of downgrading.

Fielding (1993) has offered an interesting alternative perspective. Paying more attention to economic change, he distinguishes three different time scales in an effort to understand the changes going on in the South East of England. Apart from the relatively short-term 'cyclical' effects (housing market booms and busts, etc.), he looked development over a substantially longer period of time, to discover 'structural changes' (new spatial divisions of labor, for example). Finally, he pointed out 'deep structural', almost imperceptible changes (the ups and downs of a region in history).

However, there is a major shortcoming to theory, especially filtering theory. The problem is that the processes of adaptation of the housing situation (dwelling and subarea) to the next step in the household career are not necessarily invariable in time and place. And therefore neither are the outcomes of the processes.

The percentage of a given household type that moves from one typical subarea to another upon reaching the next household stage is not necessarily the same in different periods of time. Norms and attitudes change. There are fluctuations in the functioning (tightening or loosening) of the housing market. There are demographic transformations. Housing and environmental policy evolve from less public to more private. The dwelling allocation rules change; new financial regimes are introduced (subsidies, income policies); economic conditions shift, and so on. All of these areas of change may lead to different residential patterns among 'identical' types of household at a given time, compared to other periods. There is no doubt that change will occur; the patterns of change may differ, however.

Apart from variation in terms of timing, the patterns will vary in terms of space, place, and location. The variations will reflect specific (historical, political, or state organizational) characteristics. The dynamics of different areas and subareas in urban regions and countries will be manifest in the patterns of household change.

In this contribution, we will present some results of a study comparing residential patterns in Dutch metropolitan (sub)areas at the beginning, the middle, and the end of the eighties. The shifts will be interpreted in terms of the changing structure of the subareas and trends in society at large. Attention is directed to demographic as well as (socio-)economic dimensions. Focusing on the subareas, we will be able to look at short-run developments (ten years). At a somewhat higher scale, we will also have the opportunity to look at demographic and (socio-)economic information that spans a longer period of time. In theoretical terms, the aim of this paper is to test classic filtering theory and, where relevant, to consider some additional explanations.

In sum, this contribution will address three questions:

- Are there any differences between the residential patterns exhibited by types of household at certain stages of their housing career during the eighties?
- Can these differences be related to the changing demographic, economic, or other

conditions in the subarea under review during the period of 2003-2004.

Figure 1 Subareas of the metropolitan areas of Amsterdam, Rotterdam, and The Hague

3 Changing residential patterns

Households distinguished according to age cohort can be related to the dwelling and subarea types for each of the years. The data is combined in a two-dimensional table which formed the basis for our analyse. The original table consisted of 396 cells 18 rows (dwelling and area types) and 22 columns (household types per age of head of household categories). The age categories overlap because of problems with the cell content.

The housing careers of households in terms of age are depicted in Figure 2 for each of the three years.

Correspondence Analysis is used to study the relation between the rows and columns of the original table (Clark et al., 1991). The technique is based on the similarity between the categories of the row and column variables. It assigns scores to the categories that can be interpreted as coordinates in a two-dimensional space and used for graphic presentation in a multi-dimensional geometric space (see Fig. 2 and 3). The scores are calculated by maximizing the association coefficient (Chi-square) between the scaled row and column variables. The origin of the graph represents the marginal distributions of both the row and column variables. A household type or dwelling/subarea type close to the origin resembles the marginal distribution of the contingency table. The larger the distance from the origin of the graph, the more the category differs from the general (average) behavior of the population. Small distances between household categories show similarity with respect to the distributions of these categories in terms of the dwellings/subareas they are living in.

The technique provides insight in the structure of a complex table. When data for several years is combined (by making it a dimension of the row or column variable), changes in patterns can be explored.

The patterns in Figure 2 clearly show the obvious; on the aggregate level, the different age categories have different housing situations. The general picture in the eighties reveals an association between young households and rental dwellings. These are close to the inner city or in 19th-century neighborhoods of the metropolitan area; these young people are also found in multi-family rental dwellings in the new towns. Somewhat older households are relatively strongly associated with the owner-occupier sector in the new residential areas in the central city, in new towns, or in suburbs. Relatively old households can be found in the early postwar owner-occupier sector or in the rental sector, often in multi-family structures. The patterns suggest the existence of an association between the age of the head and the income position of the household. We will return on this point in Section 4.

Comparison across the years reveals the rejuvenation of the housing stock (as new dwellings are built, older ones are demolished). It also shows an increase in the share of single family houses and owner-occupier dwellings, which were occupied by several types of household.

Figure 2 Shifting positions of households by age cohorts relative to the housing situation (dwelling type and subarea)

Age head
of household

Housing situation

A1	18-33	c	Central city	g	Growth cities (new towns)
A2	26-37	c1	Inner city	g1	owner-occupied dwellings
A3	30-41	c2	1870-1905 owner-occupied dwellings	g2	single-family rental dwellings
A4	34-45	c3	1870-1905 rental dwellings	g3	multi-family rental dwellings
A5	38-49	c4	1906-1944 owner-occupied dwellings	s	Conurbation (suburbs)
A6	42-53	c5	1906-1944 single-family rental dwellings	s1	single-family owner-occupied dwellings
A7	46-57	c6	1906-1944 multi-family rental dwellings	s2	multi-family owner-occupied dwellings
A8	50-61	c7	1945-1959 owner-occupied dwellings	s3	single-family rental dwellings
A9	54-65	c8	1945-1959 rental dwellings	s4	multi-family rental dwellings
A10	58-69	c9	1960-present owner-occupied dwellings		
A11	62-99	c10	1960-present single-family rental dwellings		
		c11	1960-present multi-family rental dwellings		

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990

Figure 3 Shifting positions of households relative to the housing situation (dwelling type and subarea) in 1981, 1985, and 1989

a. single-person households

Age cohorts

18-33 age head of household

Age head 1981

Age head 1985

Age head 1989

Housing situation

■

c Central city

c1 Inner city

c2 1870-1905 owner-occupied dwellings

c3 1870-1905 rental dwellings

c4 1906-1944 owner-occupied dwellings

c5 1906-1944 single-family rental dwellings

c6 1906-1944 multi-family rental dwellings

c7 1945-1959 owner-occupied dwellings

c8 1945-1959 rental dwellings

c9 1960-present owner-occupied dwellings

c10 1960-present single-family rental dwellings

c11 1960-present multi-family rental dwellings

g Growth cities (new towns)

g1 owner-occupied dwellings

g2 single-family rental dwellings

g3 multi-family rental dwellings

s Conurbation (suburbs)

s1 single-family owner-occupied dwellings

s2 multi-family owner-occupied dwellings

s3 single-family rental dwellings

s4 multi-family rental dwellings

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990

Figure 3 Shifting positions of households relative to the housing situation (dwelling type and subarea) in 1981, 1985, and 1989

b. multi-person households

Age cohorts

Housing situation

18-33 age head of household

Age head 1981

Age head 1985

Age head 1989

- c Central city
- c1 Inner city
- c2 1870-1905 owner-occupied dwellings
- c3 1870-1905 rental dwellings
- c4 1906-1944 owner-occupied dwellings
- c5 1906-1944 single-family rental dwellings
- c6 1906-1944 multi-family rental dwellings
- c7 1945-1959 owner-occupied dwellings
- c8 1945-1959 rental dwellings
- c9 1960-present owner-occupied dwellings
- c10 1960-present single-family rental dwellings
- c11 1960-present multi-family rental dwellings

- g Growth cities (new towns)
- g1 owner-occupied dwellings
- g2 single-family rental dwellings
- g3 multi-family rental dwellings

- s Conurbation (suburbs)
- s1 single-family owner-occupied dwellings
- s2 multi-family owner-occupied dwellings
- s3 single-family rental dwellings
- s4 multi-family rental dwellings

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990

Of course the patterns and shifts over time will differ greatly for different types of household. Therefore, it is necessary to divide the households into much more homogeneous categories. To start with, we subdivided households according to the number of its members. Figure 3a depict the position of the age cohorts relative to the residential areas for single-person households only. Apparently, in 1981 young single person households (18-37) were still able to find a dwelling in or close to the inner city. But by 1989, the same age cohorts (18-37) were increasingly relegated to the rental sector. They were living in either the 19th-century neighborhoods or in multi-family structures in the new towns. These housing segments, though built in entirely different periods, now have identical functions for the young single-person households! Somewhat older cohorts (34-49) show a shift the other way around. Between 1981 and 1989 these single-person households showed more interest in living in the inner city. These processes seem to indicate and confirm that classic filtering theory is no longer valid for some types of household.

Another remarkable change in the situation concerns the owner-occupier sector in the suburbs, recently built central city areas, and the older single-person household age cohorts (42-60). In 1981, quite a few of these households tended to live in these two housing sectors. However, in 1985 far fewer households of that age cohort lived in these environments. But by 1989, they had recovered their relative position. In Section 4, we will discuss a possible explanation.

Figure 3b reveals that the rejuvenation of the housing stock is most clearly related to multi-person households. Recent generations of multi-person households, in each age category, tend to live in newer constructions. For example, multi-person households where the head is 38-49 years old, generally lived in a newer house in 1989, compared to 1981. In general, multi-person households also show a shift towards the owner-occupier sector and locations outside the central city. Old owner-occupier residential areas only gain in importance for young households (26-37 years old).

In summarize, multi-person households still seem to fit filtering theory, where it describes shifts over time. Small households move up to the owner-occupier sector in old neighborhoods after having taken their first steps in a housing and economic career. Then they move up to a newer dwelling and a place outside the central cities. These figures also reflect the persistence of the suburbanization process for these household types. Older 20th-century rental dwellings lose their importance for multi-person households over time. But while losing their function for these households, these older units retain a function for younger single-person households.

4 Beyond classic filtering theory

Part of the processes described above may be interpreted by using concepts from filtering theory. But not all spatial and temporal change can be explained by referring to that theory. At least three of the processes described need additional explanation: (1) starting young single person households tend to shift from an inner-

city orientation to the 19th century neighborhoods and new towns; (2) there is pressure on the inner city exerted by somewhat older singles; and (3) the suburbanization process tends to fluctuate.

In this section, we will deal with dimensions that may provide additional information. However, at least two categories of indicators should be distinguished for the sake of clarity in providing real causal explanations. The first could be regarded as causing the changes, but these indicators might also be interpreted as effects, or even as factors simply reflecting the changes going on. Here we treat the socio-economic structure of the subareas as an example of this category. The second category refers to indicators that are generally accepted as explanatory factors. Here we treat structural and cyclical change factors as an example of this category.

Socio-economic conditions

The socio-economic dimension is not homogeneous. Characteristics like income and education, for example, are no longer strongly connected. To deal with the socio-economic position of an area, we must look at both of them. Each of the indicators may show its own association with the dynamic changes discussed above in Section 3.

Significant shifts in the distribution of income over the subareas occurred during the eighties. Of the high-income households in the entire urban area of the three cities (upper 25 per cent category), 54 per cent lived in the central city in 1981. In the same year, 46 per cent lived in the suburbs or new towns. (At that time, 66 per cent of the population of the entire urban area lived in the central city, whereas 34 per cent lived in suburbs and new towns.) By 1989, the figures were reversed: 47 per cent of the high income households in the urban areas lived in the central city and 53 per cent outside. (The share of the population in the central city had dropped to 61 per cent. Therefore 39 per cent of the population resided outside the central city.) The lower proportion of high-income households in the central city might be an effect of the general decline of population in the central cities. However, the percentage of high-income households in the central city relative to the share of the population living there shows a drop from 82 (54/66) in 1981 to 77 (47/61) in 1989. The central city is clearly losing high-income households to the surrounding area. The only exception to this rule is the *inner* city. Its share rose from two to four percent, and the relative score went up from 45 to 72. Another way to tell the same story is to point out the percentage of households living in each of the subareas and belonging to the highest income category. In 1981, 13 per cent of the inner-city inhabitants belonged to the highest income quartile. In 1989, this figure had risen to 22 per cent. Financially strong households seem to strengthen their position there.

The ageing of the new towns has had dramatic effects on the socio-economic position of their population. In 1981, new towns showed a very high share of high-income households (40%). By 1989, the figure had dropped to 34 per cent (Table 1).

These developments show a shift between 1981 and 1989. From a structure of low incomes in inner-city areas and high incomes in 'outer-city' areas, a bi-modal pattern emerged.

Table 1 Household incomes (percentages), lowest and highest quartile, of subareas of the metropolitan areas of the three largest Dutch cities in 1981 and 1989

	Lowest 25%		Highest 25%		N (*1000)	
	1981	1989	1981	1989	1981	1989
Inner cities	42	36	13	22	31	50
1870 - 1906	32	37	17	12	93	116
1906 - 1945	29	31	19	18	230	244
1945 - 1960	27	27	20	17	64	71
1960 - present	21	23	27	27	91	146
New towns	13	17	40	34	101	183
Suburbs	20	16	32	34	145	204
Total	25	25	25	25	755	1014

Source: Housing Demand Surveys, Central Bureau of Statistics/Urban Networks

Incomes were high in the inner city and high in the suburbs at the end of the decade (see Musterd and Ostendorf, 1993). This shift is clearly associated with a changing population structure in terms of type of household. The upgrading of the inner city is related to the housing demand of middle-aged (small) households who can raise sufficient bargaining power to successfully compete for a scarce but attractive dwelling (location) in the inner city. These households have put strong pressure on the area, rapidly leading to further gentrification. The flourishing situation in the suburban area simply implies a continuation of the situation in which many higher-income family households can afford to buy single-family dwellings there. In general higher-income households are more strongly related to the owner-occupier dwellings; among them, the family households are strongly related to single-family housing sectors (Everaers et al., 1992). The rest of the metropolitan area is largely in the process of downgrading, in terms of income.

The change of the residential pattern in terms of educational level is much more modest. The rise in the level of education appears to be a general trend, affecting each metropolitan subarea. Therefore, the spatial pattern is rather stable. The educational level is fairly high or average in all but the most recently built neighborhoods of the central city. Relatively modest percentages are found in new town subareas (Figure 4).

Cyclical and structural change

In the remaining part of this section, we will focus on the second category of indicators. These are often regarded as causes of population change. Together this category represents a picture of important demographic, socio-cultural, and economic explanatory dimensions. We will discuss the development of four variables: first, the share of single-person households; secondly, the changing degree of labor market participation among women; thirdly, the development of the business services sector; and finally, the unemployment figures.

Figure 4 Heads of household with high and intermediate levels of education relative to the number of employers in subareas of the three metropolitan areas in 1981, 1985 and 1989.

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990

Figure 5a shows the rising share of single-person households in each of the subareas during the eighties. It also shows the smooth gradient from inner city to suburb. The figures reflect the individualization trend in society and the urban origins of this process. This type of household has always been oriented toward inner-city areas that are characterized by a high level of functional mix. The rising proportion has unbalanced the demand and supply of housing, particularly in inner-city neighborhoods. As a result, many (small) households with insufficient financial resources will be more or less forced to look for a dwelling elsewhere. This phenomenon might provide an economic explanation for the fact that by the end of the eighties, young single-person households were 'moving up' to rental dwellings in new towns or to 19th-century dwellings. Older singles, who on average have higher incomes, are simply outbidding younger singles. The 1989 figures for each of the three metropolitan areas separately reveal a slight difference between the inner city of Amsterdam and The Hague and that of Rotterdam (Figure 5b). The destruction of the inner city of Rotterdam during the Second World War and the initial

differences between the cities in terms of economic structure (services in The Hague and Amsterdam; industry in Rotterdam) are reflected in this figure. Compared to Rotterdam, the entire metropolitan region of Amsterdam has higher percentages of single-person households.

The rise in the number of single-person households appears to be a rather general process, not only in spatial but also in temporal terms. The rapid increase in the share of singles during the first half of the eighties seems to have ceased. This rise and fall is of importance in regard to future expectations (Figure 6).

The magnitude of restructuring in the Dutch context is clearly shown in Figures 7 and 8. Figure 7 shows the increasing labor market participation of women. Figure 8 depicts the development of the business services sector (lawyers, accountants, consultants, advertising agencies, etc.), which is still one of the fastest-growing sectors of the Dutch economy. The process appears to be quite similar to what is going on in many other restructuring economies (Sassen, 1990; Buck et al., 1992). One of the important effects of restructuring is the growth in flexible employment. This often implies temporary jobs and more dual-income households. In this connection, three subsequent effects may be expected. First more and more households will have temporary employment. This gives them insufficient guarantees for upwardly mobile housing behavior. For example, young singles who live in 19th-century neighborhoods and have temporary employment will have to stay there for a longer time than they would have ten years ago. This may offer an additional explanation for the increase of the association between young single-person households and the relatively cheap housing market segments in the 19th-century neighborhoods and new towns. Secondly, a growing number of households will look for a dwelling in an urban environment. The higher labor market participation of women implies a stronger urban orientation. This is related to the need for proximity to all kinds of services. This will be especially true if the household consists of only one earner person or of two earners without children (Vijgen and Van Engelsdorp Gastelaars, 1991). The stronger association between older singles and the inner city during the eighties is also related to this phenomenon. Thirdly, the number of households with a dual income will increase. They will have more options to buy a home. Because most of the owner-occupier dwellings in the Netherlands are located in suburban areas, growth will be most vigorous there.

However, not all changes are structural. Economic change triggered by so-called long waves is often distorted by short cycles. One of these 'short cycles' may be helpful to explain the '1985 effect', that we referred to above with respect to the behavior of single-person households aged 42-60 (Fig. 3a). The first half of the eighties represents an economic slump. The variation in the unemployment rate reflects this economic bust. At the end of the seventies and in the early eighties, there was great reluctance to move to suburban locations because of the economic uncertainty arising from the second oil crisis (Musterd et al., 1991). During this period, it was especially the settled middle-aged single-person households that hesitated to buy a dwelling in the suburban (owner-occupier) areas. Because other

Figure 5 Single-person households per subarea in the three metropolitan areas

a. 1981, 1985 and 1989, per subarea

b. 1989, per subarea by metropolitan area

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990

Figure 6 Long-term trends, percentage of single-person households, 1971-1990

Source: NCBS Housing Demand Survey 1981, 1985/1986, 1989/1990
NCBS Household series

Figure 7 Employed women as percentage of all employed, per metropolitan area and for the Netherlands, 1973-1991

Source: NCBS Statistics of employed persons

Figure 8 Business services as percentage of total economic activity, per metropolitan area and for the Netherlands, 1973-1988

Source: NCBS Statistics of employed persons

household categories - in other age categories and in the rental sector - did not 'freeze' in the housing market in equal proportions, the relative position of the older singles moved up to the average (Fig. 3a). After the economy recovered in the second half of the eighties, a renewed suburbanization wave was observed. Multi-person households did not react as directly to the economic fluctuations. This is probably due to their ample income situation, derived from dual incomes.

5 Conclusions and future expectations

This article has discussed some changes in the residential pattern of households during the period 1980-1990. First we concluded that filtering theory offered insufficient explanation for the processes going on. We then 'explained' the unexplained variation in the patterns of the household types by analysing relatively long time-series related to basic explanatory factors. Additional factors having structural and non-structural effects were dealt with. This article concludes with some statements regarding the development of residential patterns in urban subareas in the years to come.

- Housing behavior of 'traditional' households can still be projected using 'classic' filtering theory. Housing behavior of young and/or single-person and/or small

households must be understood by looking at structural changes in the economy of a city.

- As national housing policy shifts its attention to the owner-occupier sector, the already strong suburbanization tendency of multi-person households in all age categories will even become stronger.
- Inner cities will stay under the pressure of older high-income single-person households (who were young in 1981). Part of these households did not start a family and are able to afford expensive accommodation in the inner city. The result is that the (often highly educated) lower-income households, who are oriented toward the inner city area as well, are pushed out of this area. Since the mechanisms stimulating these processes are still operating, a growing number of (young) households will have to rely on the 19th-century and new-town rental sector.
- The (intended) reduced role of the state with respect to all kinds of redistribution (in terms of income, health care, benefits, and so on) will combine with the ongoing processes of privatization and decentralization in the sphere of housing (e.g. Forrest and Murie, 1994) to increase the differences between household categories in the future. Because of the differences between the residential areas in terms of location profile and dwelling characteristics, socio-spatial segregation will become more evident than it is now. The intended reduction of the social rented sector will stimulate this development.
- The declining growth rate of small (single-person) households will eventually lower the number of households with a central-city orientation, relieving the pressure on that area somewhat.
- The suburbanization process is strongly related to the economic swings of business cycles. During a recession, suburbanization often declines.

Note

This article is based on a paper presented at the ENHR Conference on 'Housing Policy in Europe in the 1990s, Transformation in the East, Transference from the West', Budapest, 7-10 September 1993.

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