MISMATCH IN DUTCH HOUSING DISTRIBUTION AND THE EFFECTS OF ALLOCATION POLICY

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1 Introduction

The general trends in housing systems in Western Europe are fairly similar. All countries went through a phase of great housing shortages and strong government involvement in the fifties and sixties. At present the housing market is loosening up. The government is withdrawing from housing provision in more and more countries. As a result, market parties are acquiring more latitude.

In the Netherlands, this policy shift occurred only recently. The introduction of the memorandum on Housing in the Nineties (Ministry of Housing, 1989) led to this break in the trend. The motives currently underlying government intervention were formulated in that Housing Memorandum. There are much more modest in nature than the motives that prevailed until then. Thus, since 1989, the most important goal of housing policy has been to let the housing market function better. Furthermore, concrete government aid should be directed towards the lower-income groups. Accordingly an indicative limit of Nlg. 30,000 in disposable household income per year was set for eligibility. This limit corresponds to the modal income in the Netherlands.

The memorandum noted that distribution of the available housing stock largely determines the extent to which the government must provide financial support to house the target groups of the policy adequately. Therefore, 'Housing in the Nineties' poses specific questions about the degree of 'disequilibrium' in housing distribution. To what extent do households with a relatively high income live in cheap rented dwellings? To what extent are lower-income groups accommodated in expensive rented dwellings? The memorandum refers to this phenomenon as 'mismatch' and differentiates cheap and expensive mismatch. Major methodological objections can be made to this designation. Also the term mismatch implies a negative value judgment. However, there are positive aspects of a social rented sector that is heterogeneous in terms of income of its occupants. Ghettoization and segregation, which occur in many British cities, can be avoided by way of mismatch. Thus, various authors (Deben, 1989; Boelhouwer and Priemus, 1990, Diele-

man et al., 1992) consider the desire of higher-income groups to occupy a rented dwelling in the social sector as a vote of confidence. Apparently, broad sections of the population appreciate the good quality of the housing stock. This attitude in itself has a positive effect on the housing climate. Because the concept of mismatch is well established in Dutch housing circles, we shall use it here despite the objections mentioned. However, we employ the concept without assigning it a positive or negative connotation.

Analyses of the housing stock showed that in 1985, 50 percent of the more expensive rented dwellings with a rent of Nlg. 600 or more were occupied by the target groups of the policy. In contrast, 31 percent of the cheap rented dwellings -- that is, those with a rent below Nlg. 450 -- were occupied by households with an income higher than modal. In view of the goals of housing policy, this situation is a thorn in the minister's flesh. The problem is that property subsidies end up with households that have no need of them, in view of the size of their income. Conversely, high individual subsidies are necessary to contain the housing costs of those living too expensively.

The problem of combating an unbalanced housing distribution is not exclusively Dutch. It also arises in countries where a strong intermediary non-profit organization is responsible for the housing of lower-income groups. There, many medium- and higher-income groups also occupy cheap parts of the stock of social rented housing. As a result, less well-off house hunters are often forced to fall back on other sectors of the housing market (often the private sector). Otherwise, they have to settle for dwellings not geared to their household or remain unable to satisfy their housing demand. As in the Netherlands, discussions are therefore being conducted in other countries. These include Sweden (for the cooperative sector), France, and the Federal Republic. Measures are being considered to reduce this mismatch in the distribution of the existing housing stock. In the Federal Republic that has led to higher rent tax in the nineties. In Belgium, rents in the social rented sector are set on the basis of income. In other countries, such as France, the Netherlands, and Denmark, the government tries to influence the allocation policy of the social landlords.

This article devotes attention to the regional differentiation of the expensive mismatch in the Netherlands. We define this phenomenon as the occupation of a relatively expensive rented dwelling by households with a relatively low income. The intensity of the mismatch is established on the basis of the housing allowance claimed per housing market area. In this light, the problem addressed here may be stated as follows: *To what extent can a tighter allocation policy lead to a more 'balanced' distribution of the housing stock with regard to the relation between rent and income?* To answer this question, we review the difference in housing allowance claims per housing market area (Section 2). This difference is explained by objective characteristics in Section 3 and by subjective characteristics in Section 4. Section 4 is more technical and methodologically oriented. It presents the results of an investigation performed in 1990 into the background of the differences in recourse to housing allowance per housing market area (Boelhouwer, 1990). The final con-

clusions are presented in Section 5. There, the consequences of the research results for housing policy are reviewed. More specifically the role of allocation policy in reducing the expensive mismatch in the existing housing stock is highlighted.

2 The difference in claims on housing allowance per housing market area

Individual subsidies have been available in the Netherlands since 1975 by means of the housing allowance system. The household's income and the rent level determine eligibility for a housing allowance. Both factors have ceilings. If one of these limits is exceeded, the household does not qualify for the subsidy. The housing allowance may be regarded as one of the pillars of housing policy. Its importance is demonstrated by the figures: at the beginning of the nineties, some 30 percent of all tenants in the Netherlands were claiming the allowance.

For the 49 housing market areas in the Netherlands, we calculated the claim on housing allowance. For this purpose, we define a housing market as the area within which applicants for housing are generally prepared to move, without this leading to unacceptable loss of social or cultural contacts or change of job. A housing market is a much-used territorial division in Dutch housing policy and housing research.

Expensive mismatch is common in the Netherlands. However, this skewed distribution of the housing stock displays a strong regional differentiation. Various causes may be adduced for this phenomenon, whereby two main categories are distinguished: objective characteristics and policy aspects.

In view of the content of the Housing Allowance Act, rent and income are the main objective variables. In addition to these endogenous variables, there are also exogenous variables. For instance, the period of construction, age of the head of household, size of the household, and the number of rooms can explain part of the difference between recourse to housing allowance.

Part of the variation in the difference can also be determined by the subjective characteristics. These refer to the way in which the accommodation becoming available in a given housing market area is distributed among those seeking housing. In particular, the allocation criteria that are applied with regard to the relation between rent and income are revealing. The central government attaches great value to allocation. This policy instrument is an effective means of combating mismatch. Many recent policy papers emphasize the need for strict application of these criteria. Furthermore, since 1993, the house-building program takes the effects of a strongly adapted distribution of the existing housing stock into account (Fitié, 1992; Alders and Heerma, 1993). The question is, of course, whether this is a realistic starting point. Thus to estimate the effect of tighter rules, the implementation and results of housing allocation will have to be studied per housing market area.

To get some idea of how many tenants receive a housing allowance, the total outlays for housing allowance in the period 1985/1986 should be broken down per housing market area. Of course, the absolute number of recipients is strongly affected by the size of the housing market area. Therefore, more insight may be gained by relating

the number of recipients to the size of the rental stock. We did this, by consulting the administrative files of the housing allowance scheme (the HIS database) for the period 1985/1986 and outcomes of the Housing Demand Survey 1985/1986. This comparison revealed substantial differences between the proportion of recipients of housing allowance per housing market area (Figure 1).

The differences show a clear spatial sorting. The proportion of recipients of housing allowance is lowest in the housing market areas of the Randstad. The percentages of recipients in the housing market areas in the center of the Netherlands are also below average. As the distance from the Randstad (the most densely populated area in the Netherlands) increases, the proportion of tenants receiving a housing allowance rises. This distance effect is most clearly seen in the provinces of Limburg and North Brabant (two southern provinces).

In determining the differences in claims on housing allowance by tenants in the various housing market areas, we paid special attention to the effect of the existing housing stock. However, this focus is not imperative. By taking a different perspective, a theoretically 'optimum' housing distribution can be created. We did just that. The exercise allowed us to track down the discrepancy that exists between the actual and a theoretically 'optimum' distribution in the various housing market areas. This discrepancy forms the basis on which to determine whether it is possible, or even desirable, to reduce the supposed mismatch in the distribution of households among the housing stock by deploying policy instruments such as housing allocation.

To design an 'optimum' housing distribution, we first ranked all rented dwellings according to the basic rent for the 49 housing market areas. At the same time, we made a breakdown by dwelling size. Next, the households were classified in terms

Figure 1 Ratio of subsidy recipients to number of rented dwellings per housing market area

Sources: HIS database, 1985/1986; Housing Demand Survey 1985/1986, OTB adaptation.

of the standard rent. Then the relation between rent and income under the housing allowance scheme was determined. This relation constitutes a derived variable for income. By means of a computer program, the households were again coupled to the dwellings. The following selection criteria were applied. First, all one-room dwellings were ranked by the rent. Then the single-person households were coupled to these dwellings, according to the sequence of the standard rent. The remaining single-person households were then combined with the two-person households. This category was again sorted in accordance with the standard rent (as a derivative of income). Afterwards, the coupling procedure was repeated for the two-room dwellings. A similar procedure had been used earlier in an investigation by Conijn (1989).

If the theoretically 'optimum' housing distribution were actually realized in the 49 housing market areas, the total number of recipients of housing allowance in the whole country could be reduced by nearly 47 percent. This considerable reduction is made possible by the weak connection that exists in most housing market areas between the rent level of the dwellings and the income of the households. It should be kept in mind that the various housing market areas deviate widely from each other in number of recipients.

3 Explaining the difference in claims on housing allowance by objective characteristics

To be able to assess the explanatory power of household and dwelling characteristics, we have to consider a couple of indicators.

The first sign of the difference in claims on housing allowance per housing market area is the number of recipients as a percentage of all households living in rented dwellings. Second sign is the possible reduction of the amount of housing allowance in a theoretically 'optimum' housing distribution. In comparison with the first indicator, the relations with the objective characteristics will be of an entirely different nature in this second indicator. Thus, the statistical range of the scores of the housing market areas on this variable is the opposite of that for the scores on the first. Moreover, in relation to the objective characteristics, the degree of government intervention presumably has a great influence on housing distribution.

Several objective dwelling and household characteristics were selected for evaluation of their explanatory power. We checked whether they explained differences in the claims on housing allowance by tenants in the various housing market areas.

We proceeded to investigate which proportion of the variance in the dependent variables for the different housing market areas is explained by 17 objective dwelling and household characteristics. For this purpose, two regression equations were drawn up. The unexplained variance could then be ascribed in part to the influence of dwelling allocation. The results of these regression equations are presented in Tables 1 and 2.

Table 1 The explained variance in the ratio of subsidy recipients to rented dwellings, by housing market area according to three objective characteristics (R^2)

Objective characteristics	R^2	% added explanation
Age	0.2321	23
High income	0.4600	23
Low basic rent	0.5781	11

Sources: Housing Demand Survey 1985/1986, OTB adaptation; HIS database, 1985/1986.

Table 2 The explained variance for the difference in the possible reduction of the amount of housing allowance in a theoretically 'optimum' housing distribution, by housing market area according to five objective characteristics (R^2)

Objective characteristics	R^2	% added explanation
Low basic rent	0.4881	49
Low income	0.6626	17
Proportion of one- and Two-person households	0.7416	8
Average length of residence	0.7582	2

Sources: Housing Demand Survey 1985/1986, OTB adaptation; HIS database, 1985/1986.

The calculations show that 58 percent and 76 percent of the variance in the scores of the housing market areas on the two indicators is explained by objective characteristics. These percentages are fairly high. The available data was originally measured at individual level. It was subsequently aggregated up to the level of the housing market area. In that form it was included in the analyses as percentages of classes and averages. These procedures led to an unavoidable loss of information. The figures entered in the equations may therefore be regarded as minimum values. In reality the connection is probably even stronger.

4 Explaining the difference in claims on housing allowance by subjective characteristics

Part of the unexplained variance in claims on housing allowance emanates from the housing allocation policy implemented by local authorities. Specifically this reflects the difficulty in finding good matches between the rent of the dwelling and the income of the applicant for housing. For this, we consulted the Municipal Instruments for Housing Allocation 1987 (GIWV) database. This database was compiled under the auspices of the Ministry of Housing on the basis of a survey among local

authorities. The survey concerned the instruments that local authorities use for housing allocation. It also concerned the way in which allocation is conducted. Finally, it concerned the number of dwellings and applicants for housing that allocation procedures have to deal with.

In addition to the above data, the analysis for our research drew on data about the municipal housing stock and a file with characteristics of the municipalities.

With the aid of data from all of the above sources, we can estimate how much of the total housing stock per housing area is made available in accordance with certain allocation criteria. For this purpose, the variables from the GIWV 1987 database are weighted with reference to the total number of rented dwellings in the various local authorities. Then three indicators are compiled. They reveal the extent to which the housing stock is actively allocated among the applicants for housing by housing market area. One indicator describes the intensity and the range of allocation policy. Another describes the rules. And the third is composed on the basis of the proportion of actively allocated dwellings.

The intensity and the range of allocation policy

The range of allocation policy was determined by the following reasoning. If a local authority indicated that the social rented sector and/or the private rented sector and/or the owner-occupied sector, or parts of these, fall under allocation policy, this part was labeled active. By combination of the data on the housing stock, we gained insight into the relation between the active and the rest of the housing stock per local authority.

To determine the intensity of allocation policy regarding rented dwellings, a composite variable was devised. This variable was constructed from two dimensions: the degree of activity of a local authority, and the amount of regulation that it pursues. In this way, the following classification of allocation modes was obtained: active, strongly regulating; active, less regulating; passive, strongly regulating; passive, less regulating; and non-active.

The variables that indicate the intensity of the mode of allocation and the characteristics of the housing stock were then combined into a composite variable. This variable was constructed of 12 classes. It gave some idea of the extent to which a local authority acts in a regulatory fashion in housing allocation. And it gave some indication of how much of the stock would fall under allocation policy.

In the second step, we determined for the 49 housing market areas the proportion of local authorities that scored in the 12 classes of this composite variable.

The third and last step dealt with the classes of the composite variable that we constructed on the basis of the percentage of dwellings that were actively allocated by the local authorities. These classes were reduced to five categories, indicating the intensity of allocation. In this way, the housing allocation variable was constructed. This variable is composed of five classes. For each housing market area, it gives the percentage of allocated dwellings according to three dimensions. Active, strongly regulating, or non-active. The scores of each housing market area for the five classes of the housing allocation variable add up to 100. Next, we compiled one total

Figure 2 The intensity of allocation policy, corrected for the housing stock per housing market area

Source: GIWV 1987, OTB adaptation.

score. The scores for this category were obtained by awarding points. One point was given for the category of non-active local authorities; five were given for the category of active, strongly regulating local authorities. Then the total number of points was divided by the number of categories. The minimum was 20 points for housing market areas with 100 percent non-active housing stock. The maximum of 100 was given to housing market areas with 100 percent active strongly regulated housing stock.

As may be seen from Figure 2, the intensity is highly differentiated. According to expectation, housing market areas with many urban local authorities experience a high degree of official intervention in housing allocation. Thus, the total score for the Amsterdam housing market area is 100, for Utrecht 98, for Amersfoort 92, and for The Hague 95. Conversely, housing market areas with proportionately many small rural local authorities get the lowest average score: 20 for SW Friesland, Flevoland, and Zeeland Flanders.

The rules developed

The degree of official intervention in housing distribution by housing market area can also be tracked down in another way. That is by determining the joint variance in the GIWV database (see Bosch and Vos, 1988). It may be assumed that each variable in this database is connected with the underlying dimension that represents the degree of official involvement with housing distribution. This dimension or variable to be created in a common factor of the variables present in the GIWV

database. By conducting a principal-components analysis, this common factor can be quantified. Then the score on this newly compiled variable can be determined for each local authority. Finally, by weighting this derived score to reflect the size of the housing stock and aggregating it to the housing market level, the degree of official intervention in housing distribution can be determined.

As stated above, the selected variables were then used as input for a principal-components analysis with rotation. This technique is also known as factor analysis. It was assumed that each of these variables has a relation with one or more factors that indicate the degree of official influence on housing distribution. Therefore, the common factor was used as indicator for the degree of official intervention on the housing market. This value can be obtained by determining the factor loadings for the specific housing market areas. Various methods exist to accomplish this. Here, we selected one of the most frequently applied methods: connection on the basis of regression coefficients.

In the principal-components analysis, seven factors were distinguished. The first factor explained 35 percent of the total variance in the compiled multi-dimensional cross-tabulation. The second variable was then able to add only seven percent. As an indicator of the degree of official intervention, therefore, only the scores for the first factor were used.

The proportion of actively distributed dwellings

Before the relation between the two indicators is established, a third indicator is introduced. This is the degree to which local authorities are active in housing distribution: the active stock per local authority. In contrast to the first indicator, no allowance has been made in this third indicator for the intensity of the policy. The advantage of the third indicator is that a concrete quantity is produced. This contrasts with the first two indicators, which assume an abstract value. In determining the active stock by housing market area, a correction has been applied for the total housing stock.

There is a strong positive correlation between the three indicators that show the degree of official regulation of housing distribution (Table 3). The correlation coefficients for the three indicators vary from 0.62 for the degree of official intervention on the basis of the intensity of allocation policy and on the basis of the rules developed, to 0.81 on the basis of the rules developed and the proportion of actively distributed dwellings. In light of this result, we may conclude that, for individual housing market areas, we have gained a reasonable and reliable insight into the degree of official intervention in housing distribution.

The next step is, of course, to compare the scores of individual housing market areas for the three measuring instruments with the indicators that show the differences in claims on housing allowance by housing market area. Then the following two interpretations present themselves. At first sight, it seems logical that in local authorities that have developed many rules for housing distribution, an efficient allocation of accommodation also takes place. Consequently, the claim on housing

allowance is reduced. It is proportionately less than the claim encountered by local authorities that act in a less regulatory fashion. On the other hand, the opposite situation may occur. Thus it is not unlikely that when local authorities have a relaxed housing market, they will have developed few allocation rules. Because there is sufficient supply, low-income households can also move into an appropriate rented dwelling.

As can be gathered from Table 3, the first interpretation seems more valid. Thus, there is a negative correlation between indicators A, B, and C, on the one hand, and the indicator that registers the claims on housing allowance, on the other. In housing market areas where the degree of official intervention in distribution is considerable, there is a relatively low proportion of recipients of housing allowance. This does not apply to the possible reduction of the amount of housing allowance with a theoretically 'optimum' housing distribution. For this connection, the possibilities of reduction are greater as the policy on housing distribution in a given housing market area is stricter.

In addition to the positive or negative nature of the connection, the strength of the connection is also important. The data presented in Table 3 suggest moderately strong correlation coefficients, with the odd exception. The highest correlation occurs between indicators B and 2 (0.39). The lowest statistically significant correlation is encountered between A and 1 (-0.20). The values shown in the table

Table 3 The correlation coefficients for indicators of official intervention in housing distribution and the indicators of claimed housing allowance (R^2)

	Degree of official intervention in housing allocation		
	A	B	C
A	1.00		
B	0.62	1.00	
C	0.81	0.70	1.00
1	-0.20	-0.30	-0.23
2	0.24	0.39	0.28

A = degree of official intervention in housing distribution on the basis of the intensity and the range of distribution policy

B = degree of official intervention in housing distribution on the basis of the rules developed (factor analysis)

C = degree of official intervention in housing distribution on the basis of the proportion of actively distributed dwellings

1 = number of recipients of housing allowance as a percentage of the number of rented dwellings

2 = possible reduction in the amount of housing allowance with a theoretically 'optimum' housing distribution

Sources: Housing Demand Survey 1985/1986; GIWV 1987, OTB adaptation.

indicate that the allocation component will be of only limited significance to the overall explanatory model. That model gives insight into the difference in the claims on housing allowance per housing market area. Indeed, the maximum explanatory power for these two extreme values is only 14 percent and four percent.

To determine whether the differences in claims on housing allowance can in fact be explained by the intensity of the allocation policy, the local housing market conditions, which may be responsible for a relatively large amount of claims, should be held constant. For this purpose, we have to refer to the regression equations presented earlier. After introduction of the selected objective variables, the indicators showing the degree of official intervention in housing distribution add little or no explanatory force to either equations. Thus, for the two equations, the increase in

Figure 3 The respective share of explained variance accounted for by objective and subjective characteristics and their interaction effects

Sources: Housing Demand Survey 1985/1986; GIWV 1987, OTB adaptation.

explained variance through the degree of official intervention in housing distribution on the basis of the intensity of allocation policy is 0.6 percent and 0.9 percent respectively. Of course, this increase is not statistically significant.

Finally, in Figure 3 the principal connections described in this article are presented in a diagram.

5 Conclusions

This contribution reported on a study of the difference in the claims on housing allowance per housing market area by tenants in the Netherlands as a derivative of the so-called expensive mismatch. Some clear differences can be traced back to income differences among the tenants and divergent rents of the dwellings in the housing market areas. These main causes are supplemented by some specific housing market characteristics, such as the tenant's age and length of residence. The differences could not be explained by deviations in the intensity of the housing allocation policy. When account is taken of the objective characteristics, such as rent and income, the variables that indicate the degree of official intervention in housing distribution do not add any further explanation to the differences in the claims on housing allowance in the various housing market areas. These results permit us to answer the question posed in the introduction. We posit that a more stringent allocation policy will exert only a limited amount of influence on the phenomenon of expensive mismatch in the existing housing stock.

This conclusion does not cancel out the possibility of cutting back the number of rent subsidy recipients and the amount of housing allowance by matching tenants to dwellings in accordance with stringent rent/income criteria. Actually, for all housing market areas, there is a weak connection between the rent of the dwellings and the income of the occupants. A policy cutback on the recourse to housing allowance and/or to reduce the mismatch in housing distribution will therefore have the best chance of success if the allocation of vacancies in the existing stock can be changed. However, it is doubtful that an allocation policy aimed at filtering or strict use of the rent/income test will provide sufficient relief in this framework. Therefore, in addition to a tighter allocation policy, a strategic new construction policy would contribute to a more 'optimum' distribution of housing, though to only a limited extent. Thus, above all, tenants who occupy a rented dwelling that is too cheap in relation to their income as determined by standards set by central government, prove largely unwilling to move to a more expensive rented or owner-occupied dwelling. Recent research by Dieleman et al. (1992) showed that, in practice, the possibilities of solving the cheap mismatch via strategic new construction are limited.

This somewhat pessimistic prediction, originally made in 1990, seems to be confirmed by the developments in practice. The results of the most recent large-scale housing demand surveys in the Netherlands (including the Housing Demand Survey 1989/1990) show that the battle against mismatch is making little progress. The

mismatch did not decrease in 1990 either. The percentage of households occupying rented dwellings that are too expensive in respect to their income increased slightly, both among those living in the stock (13 percent) and among those who had moved. In the stock, the proportion of households living too cheaply had risen for two years and then came to a halt in 1990. Conversely, the absolute number of people living too cheaply is still increasing. This is due to growth in the number of households with a medium and high income (Nobel and Dijkhuis-Potgieser, 1992, p. 36).

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