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**ASSESSING LOCAL HOUSING REQUIREMENTS:  
A STUDY WITH REFERENCE TO PLANNING PRACTICE**

**NICHOLAS JOHN HATTON GUILLOU**

**A thesis submitted in partial fulfilment of the  
requirements of the Council for National Academic  
Awards for the degree of Doctor of Philosophy**

**December 1990**

**Nottingham Polytechnic in collaboration with the  
Department of the Environment**

ASSESSING LOCAL HOUSING REQUIREMENTS:  
A STUDY WITH REFERENCE TO PLANNING PRACTICE  
N.J.H. GUILLOU

ABSTRACT

Making provision for new housing is a key function of development plans. The demographic approach is an established method for determining Structure Plan housing provision, but there exists no sufficiently comprehensive study of component techniques. The thesis includes a detailed study of the demographic approach. In the mid-1980's, Coopers and Lybrand identified a number of indicators of housing demand for planning authorities to use in policy formulation. The thesis builds on this work by subjecting the recommended indicators to a rigorous evaluation. Recent interest in Structure Plans has tended to focus on the South-East. In recognition of the need to consider practice elsewhere the East Midlands is chosen as a context within which to select themes for detailed consideration. The thesis includes an assessment of current practice in Nottinghamshire and neighbouring counties in the region. The Nottinghamshire study encompasses both the strategy and implementation of the existing Structure Plan, and the proposals of the 1989/90 review. In these counties, balancing housing demand against other planning considerations essentially means making provision for an "unconstrained" increase in households at broad spatial scales, with "non-demand" factors assuming increasing significance at progressively local levels. Forecasting exercises are becoming increasingly pragmatic. Intuitive assumptions are made regarding migration, while the assumptions underpinning DoE headship rates are rarely questioned in the Structure Plan process. The plans give only very limited attention to tenure and the qualitative aspects of housing. The contribution which Coopers and Lybrand's indicators could make to strategic planning is limited, principally because they relate to the interaction of market forces at particular points in time. Nevertheless, the case-study research would suggest that while strategic planning is still important, the nature of strategic planning is changing. Policies in Nottinghamshire have been interpreted flexibly, and there is an increasing tendency to engage in more frequent reviews.

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Nic Guillou

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## 1. INTRODUCTION

### Context and Research Themes

One of the fundamental roles of the British town and country planning system lies in determining between competing claims on the use of land. If having accepted this basic statement the layperson were to ask for a simple model of the planning system we might begin by considering the relationship between development plans and development control. We would refer first to the statutory functions of Structure Plans, prepared by the county councils. These are to state policies and general proposals of structural importance, to take account of policies determined at the national and regional level, and to provide a framework for Local Plans.<sup>1</sup> We would proceed by explaining that Local Plans are usually prepared by district councils and that one of their principal functions is to develop the broad Structure Plan policies and relate them to precise areas of land.<sup>2</sup> We would also explain that development control is normally the responsibility of the district councils, and that in determining applications for planning permission they will make reference to the policies included in the plans and other factors which may be relevant (material considerations).

The layperson might then ask us to indicate some of the changes to the planning system which have been made or proposed during the last decade. We might refer to central government's aims of speeding up development control, and ensuring that development is restricted only where a clear planning purpose is served and economic effects have been considered.<sup>3</sup> We would point out that while the regional dimension has not been emphasised since the early 1970's, the mid and late 1980's have seen renewed interest in this field of planning. The Secretary of State for the Environment has issued guidance for the South-East on consideration of proposals evolved by the county councils, and coverage is being extended to other regions.<sup>4</sup> We would also discuss the importance which the Department of the Environment (DoE) has attached to comprehensive Local Plan coverage in the late 1980's,<sup>5</sup> and the view that increased emphasis should be placed on decisions taken at the local (county and district) level.<sup>6</sup>

We might then make reference to the DoE's White Paper on development plans, published early in 1989. We would note that this envisaged the replacement of the existing two-tier system of planning by a system of Unitary Development Plans prepared by the district councils, with Structure Plans being replaced by Statements of County Planning Policies.<sup>7</sup> However we would also note that on appointment as Secretary of State Chris Patten expressed a concern that this could lead to difficulties in ensuring that strategic objectives would be met, and that the White Paper was not placed before Parliament in the 1989/90 session.<sup>8</sup>

Housing occupies more land than any other urban land-use, and making provision for new housing development has always been a function of development plans. However given a central government objective of increasing home-ownership and the declining role of the public sector, the last decade has seen DoE guidance emphasise the key role of the planning system in meeting the demand for private housing.<sup>9</sup> The Department's Circulars 9/80 and 15/84 and Planning Policy Guidance PPG3 gave increased emphasis to the role of local planning authorities in ensuring an adequate supply of land for private housing,<sup>10</sup> and Circular 15/84 confirmed that demand should be a factor in the determination of Structure Plan policies:

"Some structure plans reflect assumptions and forecasts that date from the early 1970s when structure plans were first prepared and imply that population growth and new development can be directed by means of land allocation to areas that may not now be well related to present and future requirements. These assumptions need to be reassessed in relation to 1981 census results and demographic trends, including household formation and migration. They should also take account of economic development in the region, changing patterns of employment and travel-to-work, the current trends in market demand for housing, including the more varied types of housing requirement now met by the private sector such as those of single persons, small households and the elderly."<sup>11</sup>

In Circular 15/84 the DoE cancelled the earlier Circular 44/78, which had also been concerned with land for private housing and had noted that whereas builders think in terms of "demand" local planning authorities tend to think in terms of "need". Although the

circulars refrained from defining either of these terms, the definitions provided by Needleman are commonly accepted:

"The effective demand for housing relates to the accommodation for which people are able and willing to pay. It takes no account of social desiderata, or of personal aspirations that cannot be fulfilled because of lack of money. Housing need on the other hand, is the extent to which the quantity and quality of existing accommodation falls short of that required to provide each household or person in the population, irrespective of ability to pay or of particular personal preferences, with accommodation of a specified minimum standard and above."<sup>12</sup>

Central government has attached increasing importance to a well-planned strategy for housing land in making provision for economic regeneration and growth. Such strategies are considered important both in providing a direct stimulus to the construction industry, and in ensuring the availability of homes in areas of job creation.<sup>13</sup> Nevertheless, DoE guidance has continued to indicate government's intentions of upholding established conservation policies and promoting the use of land in existing urban areas, in order to assist in urban regeneration and relieve development pressure in the countryside.<sup>14</sup>

"The aim is to accommodate necessary development in ways that protect amenity and ensure economy and efficiency in the use of land."<sup>15</sup>

The reader will be aware from reports in Planning and other journals that the mid-1980's saw numerous cases of builders' organisations (notably the House-Builders' Federation) arguing that the scale of housing provision made in plans was insufficient and its distribution inappropriate. There have also been cases in which conservationist groups and similar bodies have claimed that proposals in certain areas were excessive. The way in which local planning authorities formulate their housing policies is therefore a vital area for study. The passing of the housing boom of the late 1980's in no way diminishes the significance of the issue, for the simple reason that Structure Plans are long-term documents, prepared to a time-horizon in excess of ten years, and similar "boom" conditions may arise in the future.

Despite the explicit recognition that trends in housing demand should be a factor for consideration by planning authorities the Department of Environment has been reluctant to give any specific guidance regarding the techniques they should adopt in determining what constitutes "necessary development". However in the 1980's various bodies commissioned and undertook a number of studies into housing demand and related matters. Most notable amongst these was a long-running research project into various aspects of land-use planning and the housing market, commissioned by the DoE and carried out by Coopers and Lybrand Associates, a leading firm of management consultants.

Coopers and Lybrand's research was initially concerned with approaches used in determining housing provision in Structure Plans in the South-East.<sup>16</sup> They considered that the planning process should become more flexible and responsive to demand signals, although they also emphasised a continuing need for long-term plans, not least to assist in infrastructure investment planning.<sup>17</sup> They observed that:

"Attempts hitherto to take account of demand have involved the use of demographic projections; these have led to disputes between builders and planners about the appropriate population level for which to plan."<sup>18</sup>

The project culminated in the identification of a short-list of "indicators" of housing demand which the consultants recommended local planning authorities should monitor and use in determining their housing policies.<sup>19</sup>

When work on this thesis was initiated the intention had been to restrict the subject matter to an evaluation of these indicators and a study of their use (and potential for use) in the planning system. The recommended indicators had not been subject to a rigorous theoretical assessment, whilst the "demographic approach" had - apparently - been discredited as a means of determining "necessary development" in the context of contemporary central government policy objectives. However it rapidly became apparent that to limit the research in this way would be short-sighted and inappropriate.

Firstly, the House-Builders' Federation (HBF) stated in 1984 that:

"Whilst the demographic projections that are used to justify most local authority structure plan allocations for housing will continue to form the basis of future growth assessment, our view is that these fail to take proper account of housing demand and that base projections should be broadened and supplemented by a range of other data."<sup>20</sup>

This makes it clear that the Federation did not envisage the replacement of a broadly demographic framework with a completely different approach. Coopers and Lybrand developed their short-list of indicators in the mid-1980's and published their final report in 1987.<sup>21</sup> Nevertheless the position indicated above was to be broadly confirmed in 1990 by Mike Adams, former Land and Planning Officer for the HBF (London and Southern Region).<sup>22</sup>

Secondly, although the term "demographic" suggests the exclusion of economic variables and hence an orientation towards an assessment of housing need rather than housing demand it should be noted that Circular 15/84 stated that the planning system should cater not only for demand but also for "other housing requirements".<sup>23</sup> The term "housing requirements" is in common usage amongst planning authorities and in the literature generally. It appears in the titles of guidance to housing authorities issued by the Department of Environment in 1977, research commissioned by the Department and published in 1980, and in other titles. King for example discussed in 1984 "a renewal of interest in the demographic approach" to "forecasting local housing requirements".<sup>24</sup>

Circular 15/84 refrained from defining "housing requirements". However in its 1977 study the DoE had acknowledged the importance of defining concepts carefully, applying definitions of "demand" and "need" broadly consistent with those of Needleman, and using the term "requirement" as an umbrella reference to "effective demand with any addition required to reduce housing need."<sup>25</sup>

A key feature of the demographic approach is the use of a population projection as an input into a projection of the number of households

at the end-date of a plan period. "Housing requirements" are then calculated as the balance between future households and existing dwellings (or existing households), with allowances for vacant dwellings and a forecast of losses to the existing stock. The approach may therefore be seen not as a technique in itself but as a collection of techniques. Within the broadly demographic framework there exists a choice of techniques for use at each stage of the operation. The choices made will impact upon the results and will have implications regarding the interpretation of "necessary development" and what is actually meant by "housing requirements".

When work on the thesis was initiated it was considered that a study of the demographic approach would be of limited benefit, with little scope for making a direct contribution to knowledge. However it soon became obvious that there existed no sufficiently comprehensive and up-to-date study of the approach. Some aspects - notably those concerning methods of population projection - have been the subject of study for a number of years; other aspects have been researched and developed to a much lesser extent. Given Coopers and Lybrand's assessment of the importance planning authorities attach to "demographic projections", the view of the House-Builders' Federation, and the lack of any adequate study of the state of the art, there existed a clear need for such a study to be made. Given an operational context there was also a need to evaluate the quality of the data available in all cases, and to adopt a considered and responsible approach to discussing the modus operandi of the various techniques.

There is, then, a concern with methods of forecasting housing requirements. There is also a concern regarding the way in which Structure Plan housing policies are expressed. If the layperson were to ask for information concerning DoE guidance specifically in connection with the housing content of plans we would make reference to Circular 22/84. Circular 22/84 states that housing policies should relate to the number of new dwellings for which provision is to be made: Structure Plans should indicate the scale of provision in each district and identify locations where substantial growth will occur, with district councils having the responsibility for translating these policies into specific site allocations.<sup>26</sup>

We might also draw attention to the fact that this represented a departure from earlier government advice. For example, the now deleted Circular 4/79 had recommended that Structure Plans should include broad density policies.<sup>27</sup> Circular 22/84 on the other hand indicated that they were no longer obliged to do so, and if included they should be for general guidance only and not attempt to impose restrictions on the district councils.<sup>28</sup> Moreover, while the earlier circular had stated that Structure Plans should have regard to the operating needs of the district planning authorities, it had also indicated that county councils could choose to divide their areas into sub-areas reflecting particular characteristics and formulate policies accordingly.<sup>29</sup>

There are issues of "method" here, but there are also issues of "process", as well as issues of scope in the articulation of policies at different levels. County councils are required to publish and publicise draft Structure Plan proposals and may revise these following representations received.<sup>30</sup> The Secretary of State may call an Examination in Public to debate matters further, prior to approving the plan.<sup>31</sup> Similarly, where a district council intends to adopt a Local Plan as a statutory instrument, a certificate indicating general conformity with the Structure Plan must be obtained from the county council, provision for publicity made, and objections considered.<sup>32</sup> A district council will normally arrange for a Public Local Inquiry to be held under the auspices of a DoE Inspector, and will consider his recommendations prior to statutory adoption.<sup>33</sup>

Issues of "process" extend to encompass the implementation of policies and development control, the review of policies, and the effect of past policies on reformulated strategies and proposals. Research commissioned by the DoE and undertaken by Healey et al provides a useful reference point regarding policy implementation. This research indicated that Structure Plan policies in the West Midlands and Greater Manchester which aimed at resource conservation, the protection of open land, urban concentration, and a restraint on peripheral development, were largely being achieved.<sup>34</sup> It was concluded that the planning system largely provided sufficient powers

## Summary Statement of Objectives

The overall objective of the thesis is to evaluate particular techniques for assessing housing requirements, and their application in determining policy in Nottinghamshire and neighbouring counties of the East Midlands. Whilst time constraints mean that achieving a complete coverage of all techniques is not a realistic goal, these do not preclude a rigorous approach to the study.

The demographic approach is the first subject for consideration, and for practical purposes it is useful to divide the study of the approach into two parts. Chapter Two concerns methods of population projection. The chapter will include a detailed study of cohort survival and employment-led approaches, together with an assessment of the quality of the available data. The chapter will give consideration to policy interdependence and "capacity-led" approaches, making reference to particular examples from planning practice. Chapter Three concerns methods of household projection and the calculation of housing requirements over a plan period. Particular consideration will be given to the Department of Environment's headship rate method of household projection. Indicators of housing demand are the subject of study in Chapter Four. Emphasis will be placed on undertaking a rigorous theoretical evaluation of Coopers and Lybrand's recommended indicators. Explicit consideration will be given to the modus operandi of each of these indicators.

Chapters Five and Six are case-study chapters. Chapter Five will comprise a study of the strategy of the Nottinghamshire Structure Plan, approved by the Secretary of State in 1980, and the implementation of its housing policies. The techniques used in policy formulation will be examined and the relationship between these policies and those of the district councils will be analysed. Chapter Six will comprise an evaluation of current practice in Structure Plan policy formulation. A rigorous investigation into issues of method and process will be undertaken in a study of the review of the Nottinghamshire plan. The chapter will include a comparative assessment of methods used in the Structure Plans of Derbyshire, Leicestershire and Lincolnshire.

## Research Method

The method employed in the research includes a wide-ranging study of the literature. Material from both primary and secondary sources is analysed. Primary sources include Structure and Local Plans, supporting technical documents and other related material, documents submitted to local authorities as part of the planning process, and the minutes of council meetings. This information is supplemented by the testimonies of informants in local authorities, the Department of Environment, and other bodies. The study is enhanced as a result of attendance at conferences and seminars held by various organisations.

Graham Gardner, Senior Planner (Planning Policy Group), was identified as key informant for Nottinghamshire County Council. A list of the county council's contacts in district planning authorities was supplied and this formed the basis for the initial programme of interviews. Informants in county councils elsewhere were identified by telephoning the planning department and asking to speak to an officer "with responsibility for the housing element of Structure Plans". Where information was sought from other organisations informants were identified either from the available literature or by contacting the relevant section. A list of key informants is contained in an appendix to the thesis.

Interviews were undertaken using the "focused interview" technique. This is a semi-structured approach in which a framework of topics is established around which the respondent is reasonably free to speak.<sup>38</sup> The technique was considered particularly appropriate for interviews of an exploratory nature, where the emphasis was on identifying themes and material for further study, and in cases where broad perspectives and the opinions of respondents were sought. Where the concern was with specific technical issues and particular processes a more structured approach was adopted, but a degree of flexibility was retained so as to allow for further elaboration.

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32. Ibid., paras 3.42, 3.60
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## 2. THE DEMOGRAPHIC APPROACH : PART I - POPULATION PROJECTION

### 2.1 INTRODUCTION

A population projection is a fundamental component in the demographic approach to assessing local housing requirements. A distinction may be drawn between population models which rely on extrapolating trends from observed demographic data (direct techniques), and those which relate forecasts to exogenously forecast social and economic variables (indirect techniques).<sup>1</sup> Basic texts indicate that simple extrapolation techniques usually involve fitting one of a number of functional forms to observed population data, and it is worth reminding the reader of those most commonly referred to in the literature.<sup>2</sup>

Linear extrapolation involves an assumption that the population will change by a constant increment in each successive time interval. Fitting an exponential curve to an observed increase in population makes the assumption that growth will increase: the increments by which the population is expected to change over time are themselves expected to increase in size. Conversely, applying a modified exponential functional form makes an assumption of declining growth. The Gompertz or "S-shaped" curve combines both of these functional forms. In the comparative method the assumption is made that the future trend in an area can be predicted on the basis of a past trend observed elsewhere, while ratio methods assume a direct relationship between future change in one area with that expected in a wider area of which it is a part.

These methods are characterised both by their simplicity and by two major weaknesses: they fail to account for the causal factors leading to population change and they fail to produce projections disaggregated by age and sex. Component methods make a distinction between the components of population change: mortality, fertility and migration. The cohort survival model is a well known example of a component method. Simple indirect techniques may involve independently forecasting employment or housing and applying a ratio to produce a forecast of population. Alternatively a natural increase projection may be made and the effect of these variables upon migration assessed (the natural increase and migration method).

We consider first the cohort survival model. The relationship between the components of population change is explored and variant approaches examined. Cohort survival models are used by OPCS (Office of Population Censuses and Surveys) in producing projections both at national and county levels and these provide the population input into the Department of Environment's household projections. Special reference is made to the OPCS models.

Our major concern lies in the practical application of models, and the technical issues associated with the quality of data and the characteristics of the data available from different sources are therefore important concerns. We proceed by considering in turn the requirement for a base year population estimate and the data required for projecting each of the components of population change.

We then consider the relationship between population and employment. Methods of forecasting employment are examined and issues arising in the integration of employment and population forecasts identified. The data requirements of employment-led methods are considered. Policy interdependence in forecasting population and employment is discussed. The capacity-led approach to determining the future size of an area's population is considered and specific examples of its use in planning practice are identified. The concept of "local housing needs" is considered. Particular reference is made to methods used in the South-East. The administrative context is considered and regional perspectives discussed.

## 2.2 THE COHORT SURVIVAL MODEL

The cohort survival model represents an extension of the "basic demographic equation" which relates change in the population to the components of change and which indicates a fundamental relationship in formal demography.<sup>3</sup>

$$P_{t1} = P_{t0} + BTH_{t0-t1} - DTH_{t0-t1} + IM_{t0-t1} - OM_{t0-t1}$$

-where P = population

BTH = births

DTH = deaths

IM = in-migrants

OM = out-migrants

$t_0, t_1$  denote two points in time ( $t_0$  preceding  $t_1$ ),  
and the subscript  $t_0-t_1$  denotes the interval between  
these points in time

We can express the equation as:

$$P_{t1} = NCP_{t1} + NM_{t0-t1}$$

-where NCP = natural change population at  $t_1$

NM = net migration

The natural change population equals the existing population plus births minus deaths; net migration equals in-migrants minus out-migrants, a positive value indicating net in-migration, a negative value indicating net out-migration.

We consider first the case of an area experiencing no migration across its boundary. A key principle of demographic theory is the relationship between demographic events and the population which gives rise to their occurrence - the "at risk" population. The simple component model of projection involves the application of projected fertility and mortality rates to the existing population.

Thus:

$$NCP_{t1} = P_{t0} + P_{t0} (BTHR) - P_{t0} (DTHR)$$

-where BTHR = crude fertility rate, expressing the  
probability of a person giving birth  
between  $t_0$  and  $t_1$

DTHR = crude mortality rate, expressing the  
probability of a person dying between  $t_0$  and  $t_1$

The principal limitation of this approach is its failure to account for changes in the age/sex-structure of the population. The distribution of the population by age and sex is a major factor influencing numbers of births and deaths<sup>4</sup> and the application of crude rates carries with it the assumption that the observed distribution will be maintained in the future. Furthermore the approach produces a projection of the total population only, thereby restricting the choice of method for projecting numbers of households.

Disaggregation is achieved in the cohort survival model. In this approach the existing population is aged as follows:

$$NCP_{(a+1)st1} = P_{ast0} - P_{ast0} (DTHR_{as})$$

-where  $a$  = age-group equal in length to the interval  $t_0-t_1$   
 $s$  = sex

$DTHR_{as}$  = age/sex-specific mortality rate, expressing  
the probability of a person of sex  $s$  and  
age  $a$  at  $t_0$  dying in the interval  $t_0-t_1$

The number of births, which will form a new cohort, is projected as follows:

$$NCP_{(a=1)t1} = \sum_a P_{aft0} (BTHR_{af})$$

-where  $f$  = females

$BTHR_{af}$  = age/sex-specific fertility rate, expressing  
the probability of a woman of age  $a$  at  $t_0$   
bearing a surviving child in the interval  $t_0-t_1$

The total natural change population projection can be calculated as follows:

$$NCP_{t1} = \sum_a \sum_s NCP_{(a+1)st1} + NCP_{(a=1)t1}$$

One of the weaknesses of the basic cohort survival model is the requirement for age-groups to be of equal length to the projection interval, and methods have been derived for overcoming this limitation.<sup>5</sup> However in practice it is customary to retain the structure of the basic model. A sex ratio, expressing the probability

of a child being born male or female, may be applied to the population of age-group  $a=1$  at  $t_1$ , and a "self-generating" or "recursive" process<sup>6</sup> initiated whereby the projection at time  $t_1$  serves as a base from which to project the population at time  $t_2$ . For example, the models used by OPCS involve the disaggregation of the population by sex and single years of age and its projection through a series of annual cycles. That is to say, the projection for any future year represents the outcome of projections made for each intervening year of the overall projection period. Different age/sex-specific mortality and fertility rates are applied to the population in each annual cycle and we shall consider the projection of these rates later in the chapter. First we must consider approaches to handling migration in cohort survival models.

#### Single and Multi-Region Variants

Migration may be incorporated by the application of a net migration rate. Thus:

$$NM_{(a+1)st0-t1} = P_{ast0} (NMR_{as})$$

--where  $NM_{(a+1)st0-t1}$  = net migrants of sex  $s$ , moving in interval  $t_0-t_1$  and aged  $a+1$  at  $t_1$

$NMR_{as}$  = age/sex-specific net migration rate, expressing net migrants of sex  $s$ , aged  $a$  at time  $t_0$ , as a proportion of the area's population

One point which the reader will observe is the absence of a projection of migrants of age  $a=1$  at time  $t_1$ . It may be possible to estimate their number (given the availability of data) but we accept here the convention<sup>7</sup> that the total "with-migration" population projection is given by:

$$P_{t1} = \sum_a \sum_s (NCP_{(a+1)st1} + NM_{(a+1)st0-t1}) + NCP_{(a=1)t1}$$

However the use of a net migration rate raises another issue. The principle underpinning demographic rates requires the denominator to be formed by the population leading to the event in question. Consider the interpretation of an out-migration rate  $OMR_{as}$ . Such a rate would express the probability of a person of sex  $s$  and age  $a$  at  $t_0$  migrating from the area in the period  $t_0-t_1$ . The out-migration rate therefore

accords with this principle. However no corresponding interpretation can be placed upon a net migration rate, nor indeed an in-migration rate. The population "at risk" of migration is always the population in the area from which the migrants originate.<sup>8</sup>

In the single region cohort survival model discussed above each area for which a projection is made is treated as a separate entity. Multi-region models enable mutually consistent projections to be made for different areas and avoid the need to apply net or in-migration rates. We can consider the structure of a multi-region model with the aid of an example. Consider a closed system, comprising three areas, X, Y and Z. The number of out-migrants from Area X can be calculated as follows:

$$OM_{x(a+1)st0-t1} = P_{xast0} ( OMR_{xas} )$$

-where  $OM_{x(a+1)st0-t1}$  = out-migrants from Area X of sex s, moving in interval t0-t1, and aged a+1 at t1.

$OMR_{xas}$  = age/sex-specific out-migration rate for Area X.

This operation can be carried out for each area, and migrants can be assigned to destinations by applying origin-destination probability rates. This means that in the case of Area X:

$$IM_{x(a+1)st0-t1} = OM_{y(a+1)st0-t1} ( ODR_{(y \rightarrow x)as} ) + OM_{z(a+1)st0-t1} ( ODR_{(z \rightarrow x)as} )$$

-where  $IM_{x(a+1)st0-t1}$  = in-migrants into Area X of sex s, moving in interval t0-t1, and aged a+1 at t1.

$ODR_{(y \rightarrow x)as}$  = age/sex-specific origin-destination rate, expressing the probability of an out-migrant from Area Y of sex s, aged a at t0 moving to Area X.

Thus:

$$NM_{x(a+1)st0-t1} = IM_{x(a+1)st0-t1} - OM_{x(a+1)st0-t1}$$

-where  $NM_{x(a+1)st0-t1}$  = net migrants across boundary of Area X, of sex s and aged a+1 at t1.

The procedure for calculating the number of in-migrants into each area can be simplified by using a matrix format. (Subscripts denoting age and sex have been omitted in the interests of clarity).

$$\begin{bmatrix} 0 & \text{ODR}_{y \rightarrow x} & \text{ODR}_{z \rightarrow x} \\ \text{ODR}_{x \rightarrow y} & 0 & \text{ODR}_{z \rightarrow y} \\ \text{ODR}_{x \rightarrow z} & \text{ODR}_{y \rightarrow z} & 0 \end{bmatrix} \begin{bmatrix} \text{OM}_{xt0-t1} \\ \text{OM}_{yt0-t1} \\ \text{OM}_{zt0-t1} \end{bmatrix} = \begin{bmatrix} \text{IM}_{xt0-t1} \\ \text{IM}_{yt0-t1} \\ \text{IM}_{zt0-t1} \end{bmatrix}$$

In producing projections for the counties, OPCS uses a multi-region model developed by the DoE. However the model differs in various respects from the theoretical framework discussed above and its key features merit consideration. The initial step involves calculating out-migrants by sex (but not age) for each county  $i$  and can be summarised as follows:

$$\text{OM}_{ist0-t1} = P_{ist0} (\text{OMR}_{is})$$

The disaggregation of out-migrants is achieved not by extracting age-specific rates directly from observed data, but rather by approximating the observed age-distributions to one of a series of hypothetical age-profiles.<sup>9</sup> These profiles have been developed by the International Institute for Applied Systems Analysis and draw on the fundamental similarities in migrant age-distributions observed in various localities throughout the world.<sup>10</sup> Their use enables "freak" readings in the data to be eliminated and simplifies the task of projection. Thus:

$$\text{OM}_{iast0-t1} = \text{OM}_{ist0-t1} (\text{PROPOM}_a)$$

-where  $\text{PROPOM}_a$  = out-migrants aged  $a$ , of sex  $s$ ,  
expressed as a proportion of all  
out-migrants of sex  $s$ , as indicated  
by the hypothetical profile.

The procedure for allocating migrants from origins to destinations also involves a simplification of the theoretical multi-regional model. Origin-destination rates are computed and applied not by sex and single years of age but by sex and three broad age-groups:<sup>11</sup>

- (a) Ages 0-16 and 29-59, "family moves",
- (b) Ages 17-28, "labour force moves"
- (c) Ages 60+, "retirement moves"

This produces numbers of in-migrants into each county which are distributed between single years of age in accordance with the hypothetical profiles, and subsequently controlled such that:

$$\sum_i IM_{iast0-t1} = \sum_i OM_{iast0-t1}$$

The simplifying procedures bestow on the model a level of flexibility. This is important because whilst the preliminary OPCS projections are exclusively trend-based, the published projections represent the outcome of modifications made in the light of consultations with local authorities and other bodies.<sup>12</sup> The model enables modifications to be accommodated easily, either by adjustments to the gross out-migration rates ( $OMR_{is}$ ) or to the origin-destination rates.

The model used prior to the 1981-based series involved instead a "top-down" approach in which regional projections acted as a control for county projections. This meant that in order to take account of the views of interested parties, they had to be consulted first - before the regional constraints were set.<sup>13</sup> The new model is therefore regarded as providing a more objective basis upon which to debate the preliminary projections.

Commentators have acknowledged the conceptual superiority of multi-region variants of the cohort survival model. In particular, these variants enable a mutually consistent set of projections to be produced for neighbouring areas. The use of single region models may result in a situation in which all areas are assumed to experience net in-migration<sup>14</sup> - or, indeed, net out-migration. However it has also been acknowledged that the data and computing requirements of multi-region models are far greater. Furthermore an issue arises regarding the closing of a system. For example, OPCS undertakes projections of international migration, and migrants moving across national boundaries have to be assigned to the counties as a separate component of population change.

There is an administrative/political issue then, since the projections used in Structure Plans are undertaken by the county councils. Thus even if a planning authority were to apply a multi-regional model so as to account explicitly for intra-county migration, the issue of

consistency with the projections of neighbouring counties would remain. This is an important issue, to which we shall return later in the chapter and elsewhere in the thesis.

Finally we should note that multi-region cohort survival methods do not represent the "ultimate" in demographic models. Detailed issues arise in relation to the computation of the various rates of component change and the ordering in which events occur. Consider for example two points in time  $t_0$  and  $t_1$  for which data is available. If a birth were to occur and mother and offspring were to migrate to another area during this interval, the child's move may not be registered in the computed migration rate since it would not have been alive at  $t_0$ . (This explains the difficulty encountered in projecting population in the new-births age-group referred to above). Similarly, a person may migrate into an area and subsequently die. The death may be recorded : the move may not. As a consequence an inconsistency could arise between the numerator and denominator of a computed mortality rate.

One of the key advantages of cohort survival models is that they separate out the processes of natural change and migration. However in doing this they fail to acknowledge explicitly the possibility that migrants may themselves give birth or die. (We should note of course that the effects are acknowledged implicitly, insofar as the entire population of a system of regions - migrant and non-migrant alike - will be subject to mortality and fertility rates. No one "escapes" these processes : the issue which arises concerns the area in which they occur).

Complete accounting models have been developed in order to overcome such weaknesses.<sup>15</sup> However these are of far greater complexity and their potential benefits must be weighed against the general points made above regarding the use of multi-region models in planning practice. Moreover, when undertaking projections over periods of fifteen or twenty years (or more), we may take the view that these uncertainties will be less significant if the length of the intervening projection intervals is relatively short. That is to say, given adequate data, projections made on the basis of annual cycles will be more satisfactory than those made on the basis of cycles of, say, five years in length.

### 2.3 POPULATION ESTIMATES

A fundamental data requirement is an estimate of the population in the base year of the projection period. Any assessment of sources must begin with the census of population. However different definitions and methods are used in producing estimates in the census and it is necessary to consider these in order to assess their relative merits.

The "population present" - the population enumerated in an area on census night - is the basic count. However as a base from which to assess future housing requirements it is crude, since by definition it reflects the geographical distribution of persons at one particular point in time: this distribution may be atypical. There exist two methods for estimating the "usually resident population" of an area. The "transfer-method" makes use of information supplied by households in which visitors were present on census night. These visitors are then "transferred back" to their areas of usual residence. The "present/absent method" on the other hand uses information supplied on census forms completed at the address of usual residence.<sup>16</sup>

The "transfer-method" was the sole method in use prior to 1981. Its principal advantage lies in its capacity for identifying persons usually resident at an address at which no other person was present on census night. However OPCS can only use this method after analysis of all census forms the throughout Great Britain has been completed and the estimate is therefore slow to appear.<sup>17</sup> Estimating the usually resident population by means of the "present/absent method" is a less time-consuming exercise and enables the extraction of detailed information regarding household composition.

Estimates using both methods were made in the 1981 census and we may initially consider that the "transfer-method" provides a more adequate base for projections since its coverage will be more comprehensive. A number of important points must be made here however. Firstly, the finest spatial scale at which "transfer-method" estimates are produced is at the district level.<sup>18</sup> "Present/absent method" estimates on the other hand are also produced at enumeration district and ward levels,

and these estimates may be aggregated enabling projections to be made for areas which do not conform to administrative boundaries.

Secondly, neither method accounts for persons temporarily abroad who are members of a household wholly absent on census night. Thirdly, published tables include estimates of wholly absent households (as opposed to members) and these are compatible with the "present/absent" base. In assessing housing requirements the lack of complete coverage may therefore be offset (albeit rather crudely) in the final stage of projecting numbers of households. That is to say, a household projection using as a population input the "present/absent" estimate may be made, with the estimate of absent households added on as a separate component.

Finally, we should note that the "present/absent method" provides the population base in the majority of the 1981 census tables, and will also do so in the 1991 census. OPCS proposes to minimise the problem of identifying usual residents in wholly absent households by requesting the completion of census forms by such persons, in the event of their returning home within six weeks of census night.<sup>19</sup>

Censuses are only undertaken at five or ten-year intervals and an alternative data source is provided by the annual mid-year estimates (MYE's) produced by OPCS. These estimates are derived by applying the basic demographic equation to account for changes between census night and 30th June of census year, and between each successive mid-year.<sup>20</sup>

The MYE's are estimates of "home population", a term which relates broadly to the census concept of usual residence but which differs in three respects. Firstly, the MYE's assume students to be usually resident at their term-time address, whereas the census treats them as living at their home (i.e. non-term-time) address. Secondly, they treat armed forces personnel as resident in the areas in which they are stationed, and thirdly, they apply a slightly different definition to prisoners' usual residence.<sup>21</sup>

An issue arises in relation to the treatment of these groups in making projections. This is particularly the case in areas with a large student population such as Cambridge. Here, the county council treats students as a separate element when making its projections, on account of their highly atypical socio-economic and demographic characteristics.<sup>22</sup> The handling of these groups is an important issue and we shall take the opportunity to discuss in detail the modelling assumptions which may be made regarding students in the case-studies.

In 1984 the base estimates from which to derive MYE's were refined to account for additional data becoming available.<sup>23</sup> The MYE's are produced at various spatial scales, including enumeration district and ward levels. They represent an important data source and are used as a base in the OPCS projections. However an issue arises in terms of the level of age disaggregation, since for sub-national areas these estimates - like those in the census itself - are available by five-year age groups only. A more fundamental issue arises in connection with the reliability of the data used to advance the population through successive years. Projections of population themselves rely on much of this data, and it is discussed in the following sections.

#### 2.4 MORTALITY AND FERTILITY

Cohort survival models require the application of age/sex-specific mortality and fertility rates to the population base of each cycle in an overall projection period. Since registration of births and deaths is compulsory, the information used in calculating these rates and accounting for natural change in producing MYE's is regarded as comprehensive,<sup>24</sup> although OPCS acknowledges that in a limited number of cases assigning an event to the area of usual residence may be problematical.<sup>25</sup> Denominators for the rates are provided by the mid-year estimates themselves.

A simple approach to population projection might involve an assumption of constancy in future rates. However there exist various methods by which these rates may be projected. The Government Actuary's Department, in conjunction with OPCS, undertakes such projections, and

it is important to discuss the methods used since the projected rates may themselves be regarded as a data source for use by local authorities.<sup>26</sup>

A study by Benjamin and Overton in 1980 examined the implications of three alternative scenarios regarding future mortality at the national level. It was concluded that assuming a continuing exponential decline in age/sex-specific mortality rates would provide the most adequate basis upon which to undertake population projections,<sup>27</sup> and this assumption has largely been maintained by OPCS in its more recent series. The assumption reflects the pattern of decline exhibited over the period since 1911 - a pattern which has been remarkably consistent.<sup>28</sup> Indeed commentators have suggested that a "high degree of confidence ... can be attached to mortality rate assumptions" although it is acknowledged that they should not be regarded as trivial, but rather that errors will not be substantial.<sup>29</sup>

The model used by OPCS in projecting mortality rates involves the following procedures. Firstly, base year age/sex-specific rates are computed by averaging out fluctuations in observed rates over the most recent three year period. Secondly age/specific mortality improvement factors are computed from observed data. These are applied to the base rates, producing rates for application in the first annual cycle of the overall projection period.<sup>30</sup> A recursive process is thereby initiated, in which projected rates serve as a base to which the improvement factors are applied, advancing them through each annual cycle.

The methods used in projecting fertility rates are more complex, involving the use of birth order probability models and projections of the timing of births of each order (first-born, second-born etc).<sup>31</sup> Projections are made of the proportions of women in each cohort who, during the whole of their child-bearing lives, will give birth to different numbers of children. This requires a different approach to be taken depending on the age of the cohort at the start of the projection period. For those cohorts in the middle of the child-bearing period assumptions about future births are based on evidence from the General Household Survey; for those cohorts yet to

reach this period OPCS acknowledges that "family-building patterns cannot be predicted from survey evidence and the assumptions are conjectural".<sup>32</sup>

In OPCS' principal projection the mean ages at which women give birth are extrapolated from past trends. The assumption made is that the total period fertility rate (TPFR) - a summary measure of all age-specific rates in a given year - will level out at 2.0, a value commensurate with the present average completed family size.<sup>33</sup> However while average completed family size has remained reasonably steady in recent years the timing of births is subject to a complex pattern of social and economic influences,<sup>34</sup> and the TPFR has therefore fluctuated widely.<sup>35</sup>

Assumptions about the timing of births are clearly important if we require a population projection for a particular year. A fall in the age at which women give birth would lead to a surge in population growth within a projection period, a rise in the age would lead to its postponement. There is considerable uncertainty attached to the projection of fertility rates and OPCS produces variant projections based on alternative assumptions regarding the TPFR.<sup>36</sup> However these assumptions have been shown to produce radically different population structures and are not in any case proposed as outer limits to possible futures.<sup>37</sup>

The models discussed above are used for projecting rates at the national level. Projections at the county level are derived by applying differentials specific to broad age/sex groups. These differentials are assessed as the average of those observed in the three years prior to the base year of a projection period.<sup>38</sup> However an additional uncertainty arises here since these differentials are assumed to remain constant through time, although it has been demonstrated that they have increased considerably in recent years.<sup>39</sup>

The implications of inaccuracies in the projections of mortality and fertility rates for an assessment of future housing requirements can

now be considered. Clearly, an unforeseen fall in mortality rates would imply an underestimate of the size of a future population, future numbers of households and future housing requirements. It is therefore fortuitous that projections of mortality rates can be regarded as being reasonably reliable. The implication of an unforeseen rise in fertility rates is conditional upon the choice of household projection method. If household projections are made with reference to the size of the adult population only, there will be little or no effect upon assessments of housing requirements conducted for a Structure Plan period of ten to twenty years. If, on the other hand, projections are made with reference to the population as a whole, then an underassessment of housing requirements would be implied. Of course the validity of using different methods of household projection for forecasting housing requirements is a subject which we shall address in depth in the next chapter.

## 2.5 MIGRATION

In this section we shall concern ourselves primarily with the sources of data available for making trend-based projections of migration. The OPCS projections of international migration are based upon data derived from the International Passenger Survey (IPS), a sample survey of passengers travelling through major airports and seaports. OPCS do not regard this source as wholly adequate for a number of reasons.<sup>40</sup> The sample size is small, the survey's main purpose is in assessing travellers' spending patterns for preparing the national accounts (migration information being a "by-product"), flows between the UK and Eire are not included, and there remains the task of apportioning migrants between the counties. However the IPS is an important source since others do not provide information regarding emigration.

The treatment of international migration raises a theoretical issue, since the population "at risk" of in-migration is, in effect, the population in the rest of the world. Furthermore, while the data indicates that the UK has experienced a net outflow for most of this century, net in-migration has occurred during the mid-1980's.<sup>41</sup> An appreciation of the origins of in-migrants is also important, since

this may act as a guide to sub-national apportionment; there may, for example be a tendency for immigrants to seek to locate with others from a similar ethnic background. However this presupposes an already resident reference group, whereas future sources of in-migrants may include South Africa, Hong Kong and the Gulf States.

The issue of international migration is by no means an insignificant one as far as local planning policies are concerned, and prospects have been debated at Structure Plan Examinations in Public.<sup>42</sup> However the main concern is with sub-national flows. The OPCS projections use census information indicating a person's area of usual residence as applicable at census night by area of residence one year earlier, as a means for calculating out-migration and origin-destination rates.<sup>43</sup> The census is the sole readily available source for computing the latter. Its most obvious disadvantage is that it may well be out of date. The pattern of moves prior to census night may be atypical of years before and after, and may be part of a developing trend which cannot be identified.

The National Health Service Central Registrar (NHSCR) provides a continuous record of moves, and is used by OPCS to modify its gross out-migration rates. It has been available as a data source since 1971, with age/sex characteristics being recorded on the basis of a 10% sample since 1975, this being extended to a full 100% sample in 1984. Furthermore it includes migrants less than one year old, whereas the census does not. In addition student moves are included and migration estimates from the NHSCR are therefore consistent with the population definition in the MYE's.

Although the NHSCR is regarded as being the best source of information for measuring sub-national moves continuously,<sup>44</sup> a number of limitations are apparent. Firstly, while the census provides information at fine spatial scales the NHSCR information is available only for family practitioner areas - which largely coincide with county boundaries. Secondly, only those who register with an NHS doctor will be recorded. Thirdly, studies indicate a systematic bias with female migrants more likely to re-register than males, and young men less

likely to re-register than older men.<sup>45</sup> Finally OPCS accepts that there will be a time-lag between a move and re-registration. The standard assumption is that this is of length three months, although it is acknowledged that this will vary according to age and sex.<sup>46</sup>

Mid-year estimates for the counties take into account the migration trends revealed by the IPS and NHSCR (the latter being adjusted for the "three-months" rule). However we have noted that MYE's are also produced at finer spatial scales. Essentially the method used at sub-county levels involves apportioning migrants in accordance with observed changes in the size of the electoral register, allowing for the effects of natural change, and differences in the ratio of registered electors to the total population at the time of the census. The method is complicated by the need to make various adjustments, notably regarding the different time base on which the register is compiled (October to October) and disaggregation by age and sex.<sup>47</sup>

There are a considerable number of uncertainties associated with the method for making small area estimates, not least in the assumption that coverage in different areas will remain similar over time. Furthermore the complex arithmetic used by OPCS in producing the figures has itself led to disagreements regarding their validity.<sup>48</sup> OPCS has not sought to integrate additional sources, mainly on account of the additional complexities which this would involve.<sup>49</sup> Alternative approaches to improving the quality of the statistics by extending the canvass of the electoral register<sup>50</sup> have not been pursued, principally due to costs and local concern about the degree of central control which this might entail. Nevertheless various authorities have sought to produce their own estimates, based primarily on refinements of this kind,<sup>51</sup> while the community charge register could provide an alternative source in the future, if effective in achieving comprehensive coverage.

Inaccuracies in the MYE's will increase over time at all spatial scales (the error of closure), and the cancellation of the 1976 and 1986 censuses is a further factor in leading local authorities to develop alternative information systems.<sup>52</sup> Identifying past trends in migration is therefore problematical. However producing reliable

forecasts is a highly uncertain activity. This is of particular concern, given that migration is of increasing significance in accounting for population change at local levels.<sup>53</sup>

Armitage discusses whether the multi-region cohort survival model used by OPCS is over-sophisticated given the volatility of this component, but points out that since OPCS' role is in producing projections - rather than forecasts of likely actual outcomes - its use is justified.<sup>54</sup> In concluding this section then we are mindful of Benjamin and Pollard's observation, which was made in connection with the projection of mortality rates, but which is equally relevant to migration:

"Before deciding on the effort to be expended in exercises of this kind, it is important to consider the use to which the forecast rates will be applied and whether spurious precision is justified. The term 'spurious' is used here to remind the reader that precision in the method of extrapolation does not necessarily increase the likelihood that the past trend will be maintained".<sup>55</sup>

## 2.6 POPULATION AND EMPLOYMENT

One of the main arguments against projecting migration and population on the basis of past trends is the lack of consideration given to the causal factors underpinning these trends, and the likelihood that they will continue. A relationship between employment, migration and population has long been accepted, and explicitly accounting for the effects of employment change has therefore been seen by Blincoe and others as "an important refinement in forecasting".<sup>56</sup>

Assuming an entirely self-contained travel-to-work area and no unemployment, the relationship between employment and population can be expressed by means of the economic activity rate:

$$EAR = \frac{EMP}{P}$$

- where EAR = economic activity rate

EMP = persons in employment

P = population

A simple approach to producing an employment-led forecast of population would therefore involve applying this equation, with population the sole dependent variable, and exogenous projections of employment and the economic activity rate.

### Employment Projection

The method of forecasting employment recommended by the Scottish Development Department in 1975 involves the simple extrapolation of past trends in employment by broad industrial group, modified in the light of interviews with major employers.<sup>57</sup>

Information is available from the Department of Employment's census of employment. Such censuses were conducted annually between 1971 and 1978 and subsequently in 1981, 1984 and 1987. The employment census is a relatively comprehensive data source, providing detailed information at a variety of spatial levels. Nevertheless a number of limitations should be borne in mind. Firstly, the most recent censuses have been carried out on the basis of a 2/3 sample of firms.<sup>58</sup> Although sampling errors are thought to be small it is acknowledged that some errors will arise due to such factors as non-response and biases relating to the size of firms surveyed.<sup>59</sup> Secondly, while attempts are made to maintain consistency in applying the system of Standard Industrial Classification, it is acknowledged that employers' activities may be varied and their responses dependent on their own interpretations of the standard definitions. Thirdly, the employment census excludes the self-employed. This poses a problem, because while OPCS provides annual estimates of persons in self-employment for the standard regions,<sup>60</sup> the census of population provides the only data source at local levels.

Much of the data required by the simple extrapolation method is also required by the alternative projection techniques. Shift-share analysis measures change in an area's employment relative to change nationally:

Region's employment growth = region's expected growth if  
 subject to national growth rates  
 + shift

Rearranging this equation and expressing it algebraically:

$$TSHIFT_{it0-t1} = EMP_{it1} - EMP_{it0} - \left[ EMP_{it0} \left( \frac{EMP_{nt1}}{EMP_{nt0}} \right) - EMP_{it0} \right]$$

- where TSHIFT = (total) shift

EMP = persons in employment

i,n denote the sub-national and national areas  
 respectively

t0,t1 denote two years (t0 preceding t1)  
 for which data is available.

The shift element may be divided into two components, the proportional shift, accounting for the influence of the mix of industries at different levels, and the differential shift, measuring the degree to which industries in the sub-national area grow at faster or lower rates than the same industries nationally. Hence:

$$DSHIFT_{it0-t1} = \sum_g \left[ EMP_{igt0} \left( \frac{EMP_{ngt1}}{EMP_{ngt0}} \right) - EMP_{igt0} \right]$$

-where DSHIFT = differential shift

g denotes an industrial group

And:

$$PSHIFT_{it0-t1} = TSHIFT_{it0-t1} - DSHIFT_{it0-t1}$$

-where PSHIFT = proportional shift

The shift components may be expressed in rate form:

$$DSHIFTR_{it0-t1} = \frac{DSHIFT_{it0-t1}}{EMP_{it0}}$$

$$PSHIFTR_{it0-t1} = \frac{PSHIFT_{it0-t1}}{EMP_{it0}}$$

-where DSHIFTR = differential shift rate

PSHIFTR = proportional shift rate

These rates may be projected and a projection of employment in year t2 made from a base year of t1 (the period t1-t2 being of equal length to the period t0-t1).

Thus:

$$EMP_{it2} = EMP_{it1} \left[ \left( \frac{EMP_{nt2}}{EMP_{nt1}} \right) + DSHIFTR_i + PSHIFTR_i \right]$$

Alternatively, the effect of differences in the industry mix could be handled by applying industry-specific national growth rates and differential shift rates:

$$EMP_{it2} = \sum_g \left[ EMP_{igt1} \left( \left( \frac{EMP_{ngt2}}{EMP_{ngt1}} \right) + DSHIFTR_{ig} \right) \right]$$

In both cases an exogenous forecast of national employment is required:

an aggregate forecast in the former, a disaggregate forecast in the latter. This in itself raises an issue regarding the reliability of long-term employment forecasting. The longest periods for which national organisations currently undertake forecasts is ten years. These are prepared by PACEC (PA Cambridge Economic Consultants), in association with the University of Cambridge, and the Institute for Employment Research at the University of Warwick. Most bodies undertake forecasts of not more than five years, and even over shorter periods commentators have pointed to considerable differences in expected futures.<sup>61</sup>

Setting aside the uncertainties which pervade employment forecasting generally, we may contemplate the theoretical issues which arise in connection with the shift-share method. The method has been widely used, both by academics and in regional planning, and a variant is presently used by PACEC for forecasting at the sub-regional scale.<sup>62</sup> It has had wide appeal, principally due to the relative ease with which it can be applied. However it has also been criticised for a number of reasons. Buck highlights the sensitivity of results to different levels of industrial disaggregation,<sup>63</sup> while Kuehn demonstrates that the differential shift component is unlikely to remain stable over time.<sup>64</sup> It has widely been argued that the method lacks a sound theoretical foundation,<sup>65</sup> and one of the most important criticisms is its failure to acknowledge the interdependencies between industries in an area. These various weaknesses have led some commentators to argue that the technique is overvalued and should be abandoned.<sup>66</sup>

Economic base theory rests on the proposition that the basic employment sector, producing goods and services for export outside the area under study, determines the total level of employment within it.<sup>67</sup> Total employment in an area may therefore be derived as a function of basic employment:

$$EMP = \frac{BEMP}{1 - \left( \frac{PSR}{EAR} \right)}$$

-where EMP = persons in employment (total)

BEMP = persons in basic employment

EAR = economic activity rate

PSR = population-serving ratio

The population-serving ratio is computed as follows:

$$PSR = \frac{NBEMP}{P}$$

- where NBEMP = persons in non-basic employment

P = population

The economic base mechanism is integrated with journey-to-work and journey-to-service gravity models in the Lowry family of spatial allocation models.<sup>68</sup> These models were widely used in the regional planning studies of the 1960's, including the Nottinghamshire/Derbyshire Sub-Regional Study of 1969. However an exogenous forecast of basic employment is still required, and there is an additional requirement for a forecast of the population-serving ratio: it may be argued that a rise in real incomes in the basic sector would stimulate a disproportionate rise in the non-basic jobs. A further issue, widely acknowledged, arises in the problem of defining industry types as "basic" or "non-basic".<sup>69</sup> For example, an assumption may be made that the basic sector comprises primary and secondary industries. However included here will be manufacturing firms which sell their products to private consumers living in the area under study. Even if an adequate categorisation can be made, the validity of economic base theory may itself be debated : by definition the possibility that non-basic growth may generate growth in the basic sector is assumed away.

Input-output analysis is a more detailed and sophisticated approach which seeks to account explicitly for the interrelationships between different industry types. However this immediately raises an issue in terms of the greater number of assumptions which must be made when forecasting. For example, while the economic base approach requires an exogenous forecast of basic employment, input-output analysis requires exogenous forecasts of final demand (private consumption and exports) for the products of each individual industry. Similarly, while the economic base approach requires an exogenous forecast of the population-serving ratio, input-output analysis requires forecasts of multipliers (technical co-efficients) relating the various inputs used by each industry to the gross output of the industry in question.

Of course the multipliers used in forecasting could be held constant at observed levels, but this would inevitably introduce uncertainties given that they are likely to change over time.<sup>70</sup> Indeed it is as a result of the complexities of the method and the view that no mechanical technique can allow for all relevant factors that the Scottish Development Department recommended the simple extrapolation method considered above.<sup>71</sup> Although this method, like shift-share analysis, fails to allow for inter-industry dependencies it enables qualitative information (provided by employers) to be incorporated more readily.

Finally we should point out that on perusing the literature on this subject the reader will find frequent references to the use of techniques in producing forecasts of "labour demand". It should be stressed that where this is the case commentators may not be using the term "demand" in an economic sense. This would require explicit consideration to be given to such variables as the price of labour. Strictly speaking the basic techniques will produce forecasts of "labour need" rather than "labour demand".

## Employment-led Forecasts of Population

At the start of this section a simplifying assumption was made that there would exist no unemployment in the base year of a forecasting period. However if this were not the case we would have to revise the relationship between population and employment as follows:

$$EMP = P (EAR)(1-UR)$$

-where EMP = employment

P = population

EAR = economic activity rate

UR = unemployment rate, expressing the number  
of persons unemployed as a proportion of the  
economically active population.

We also made the assumption that the area under study formed an entirely self-contained travel-to-work area. However if this were not the case the equation would require further amendment:

$$EMP = P(EAR)(1-UR) + IC - OC$$

-where IC = persons commuting in to area

OC = persons commuting out from area

The equation may be simplified as follows:

$$EMP = P(EAR)(1-UR) + NC$$

-where NC = IC - OC

and NC = net commuting flow, a positive value

indicating net in-commuting, a negative

value indicating net out-commuting

We shall refer back to this equation as the "basic equation".

Introducing commuting into the relationship leads to an important issue concerning the scale at which forecasts are undertaken. If, for example, forecasts were made at the district scale, then one might expect a relatively low level of self-containment and a correspondingly high level of commuting. The Department of Employment maps travel-to-work areas (TTWA's) as approximations to self-contained labour market areas, and these may provide alternative spatial units for which to make forecasts. We note at this point that the data recorded by the employment census is available for these areas as well as the administrative districts.

However it must be emphasised that the Department of Employment's TTWA's are approximations. Derived from commuting patterns observed at the most recent census of population, the basic criteria for area determination are that the number of persons both living and working in an area should be at least 75% of the total number of persons working there, and at least 75% of the total number of workers resident there. This means, of course, that up to 25% of an area's jobs will be filled by workers from elsewhere - in-commuters - and up to 25% of the residents in employment will be out-commuters. Moreover the acceptable threshold of self-containment may be lowered to 70% in certain areas.<sup>72</sup>

The simple linear-deductive approach to producing employment-led forecasts of population involves applying the basic equation expressed above, with population as the sole dependent variable, and exogenous projections of the other inputs. OPCS publishes economic activity rates annually for the standard regions,<sup>73</sup> and the Department of Employment undertakes projections at the national level.<sup>74</sup> While no official forecasts of unemployment rates are presently made, current rates are published monthly at a variety of scales, including administrative areas and TTWA's.<sup>75</sup>

A variant of this approach has much in common with the labour market accounts technique for assessing job shortages and surpluses.<sup>76</sup> This variant involves forecasting migration as a residual, based on a comparison between a projection of employment and a natural change population projection made using a cohort survival model. Thus:

$$NML_{t0-t1} = EMP_{t1} - [NCP_{t1}(EAR)(1-UR) + NC]$$

- where NML = net migrant labour (positive for net in-migration, negative for net out-migration)

NCP = natural change population projection

t0-t1 denotes forecast period

The full impact of employment upon the size of the population may then be accounted for by considering the demographic characteristics of the migrant labour.<sup>77</sup> Thus crudely:

$$NM_{t0-t1} = NML_{t0-t1} (1 + DEPR)$$

- where NM = total net migration

DEPR = ratio of dependents to migrant workers

In theory this allows for a more sensitive treatment of the migration component. If instead the basic equation expressed earlier were used, the implicit assumption would be that:

$$NM_{t0-t1} = NML_{t0-t1} (EAR)^{-1} (1-UR)^{-1}$$

There are further issues concerning the determination of the age/sex-structure of the migrant workers and their dependents. However more fundamental issues arise in connection with the forecasting of the other parameters linking population with employment : the economic activity rate, the unemployment rate, and the commuting assumptions. If we no longer accept population as the sole dependent variable, there exist a number of possible responses to an increase in the need for labour.

Firstly the economic activity rate may rise : formerly inactive residents - mothers with adult offspring for example - may join the labour force. Secondly the unemployment rate in the area may fall due to a take-up of jobs by the indigenous unemployed. Thirdly, an increase in in-commuting or a decrease in out-commuting could occur. There are of course a multitude of other scenarios which we might consider. For example we may contemplate circumstances in which neither the number of jobs nor the number of residents in an area were expected to change. Such a scenario would not preclude changes in the linking parameters, so long as these combined in such a way as to cancel each other out, thereby producing a nil net effect.

Studies of planning practice in the 1970's indicated the wider application of systematic methods in forecasting,<sup>78</sup> but a move away from the comprehensive urban/transportation models developed by theorists in the 1960's. This has been attributed partly to the inavailability of adequate data with which to operationalise the more complex models,<sup>79</sup> and partly to government guidance in the 1970's emphasising the study of discrete subject areas.<sup>80</sup> Thus while considerable attention was often evident in the production of independent population and employment projections, the forecasting of linking parameters and the production of mutually consistent key activity forecasts were often neglected.<sup>81</sup>

Where mutually consistent forecasts were produced, these were generally made by the linear-deductive approach.<sup>82</sup> To reiterate, this approach involves selecting one of the activities as a "prime mover", making an independent projection for this activity, and assuming the other activity to be dependent upon this projection and independent forecasts of the linking parameters. The main benefits of the approach lie in its ease of application, its ready comprehensibility and its cost-effectiveness.<sup>83</sup> However by definition it fails to take account of the inter-relationships between the linking parameters and the key activities, and those between the linking parameters themselves. For example the construction activity associated with accommodating a forecast population increase may itself imply a need for additional labour, and contribute to further labour need in related industries.

The acknowledgement of these interdependencies led in the late 1970's to the development of integrated forecasting systems, capable of reconciling the preliminary component forecasts via a series of marginal adjustments to each.<sup>84</sup> It has also led to the development of more flexible approaches to integration, notably by the former Greater Manchester County Council and by Grampian Regional Council. Of the latter it has been said that:

"The main advantage ... is that, in theory at least, integration can be achieved by adjusting any of the linkage parameters or individual activity forecasts. As such it can be seen as a more 'conceptual' than a 'technical' approach which must ultimately depend on the judgment of the forecasters".<sup>85</sup>

It could be argued that in view of contemporary central government policy objectives local authorities should make provision for population growth such that no increase in commuting into a (delineated) TTWA is required. Of course, these TTWA's may themselves reflect past planning policies, and be broader in size than they might otherwise have been. (Policy interdependence is a theme to which we shall return in the next section).

In fact the relationships between the linking parameters continue to represent an under-researched and neglected area of study. In particular the theory of commuting is largely restricted to studies at the intra-urban level,<sup>86</sup> with little attention given to the determinants of longer range flows, something which is regarded as "quite extra-ordinary" by commentators such as Evers.<sup>87</sup> Certainly, the interdependencies are of critical importance, given our interest in assessing housing requirements within a county area.

As we would expect, studies indicate that the probability of moving to the area of employment is likely to be influenced by commuting costs.<sup>88</sup> However technological advances and improvements in inter-county and inter-regional transport systems may lead to a reduction in these costs. Conversely, such factors as oil price rises, rail fare rises, and the disfunctioning of the national road network due to increased congestion (itself a function of increased commuting flows) will serve to increase them. In addition commuting and migration behaviour may also be influenced by housing market factors considered later in the thesis.

The extent to which the unemployed may relocate in order to attempt to find work is also an issue. It is often hypothesised from economic theory that a push/pull relationship exists between regions of high and low unemployment,<sup>89</sup> and writing in 1969, McLoughlin pointed to a wealth of evidence suggesting this to be the case.<sup>90</sup> However more recent reviews of the literature, drawing on studies conducted in the 1970's and 1980's suggest that migration of this kind is not as frequent as we might initially expect.<sup>91</sup> This again may be attributable to housing market factors.

Finally we should note that some persons will neither be economically active nor dependent on an economically active relative. For example, retired persons of independent means will not be "tied" to particular areas by reason of employment and their movements must therefore be considered separately.

## 2.7 POLICY INTERDEPENDENCE

In the last section we sought to address the subject of employment projection and issues connected with deriving a forecast of population therefrom, as a base from which to assess housing requirements. In this section we discuss the incorporation of policy assumptions of various kinds and their ramifications.

We have discussed how migration and population may be forecast from an independent projection of labour need. We can also appreciate how a forecast of employment may be derived from an independent population projection, by reversing the direction of the coupling arrangement. The dependency relationship between the key activities of population and housing may be reversed in much the same way. In this thesis we are specifically concerned with methods for assessing housing requirements and we devote the next chapter to the subject of deriving such assessments from a forecast population. So as not to prejudice our later study, we make the simplifying assumption here that average household size is the only parameter linking these activities:

$$DR_{t0-t1} = \frac{P_{t1} - P_{t0}}{AHS}$$

-where DR = dwelling requirement

P = population

AHS = average household size

t0,t1 denote respectively the base year and  
projection year of the overall projection period

We may now contemplate a population forecast made on the basis of an exogenously determined dwelling provision:

$$P_{t1} = DP_{t0-t1} (AHS) + P_{t0}$$

-where DP = dwelling provision

We may similarly contemplate:

$$NM_{t0-t1} = DP_{t0-t1} (AHS) - NCP_{t1} + P_{t0}$$

-where NM = net migration (positive for net in-migration,  
negative for net out-migration)

NCP = natural change population projection

Clearly, the population and migration forecasts made in this way have no independent validity as a base from which to assess housing requirements. This type of approach may be useful where a local authority's interest is in planning its provision of other services. It may be a particularly useful technique to apply to an area of a county which is already largely built-up and where the land on which new housing could be accommodated is limited for this reason. However this "capacity-led" approach may also be applied in counties where a policy of restricting development for environmental or land conservation reasons takes precedence over making provision for population growth which might otherwise be expected to occur. In these latter cases the forecasts of population and migration are essentially "indicative" forecasts.

East Sussex County Council uses the capacity-led approach. Areas of Outstanding Natural Beauty cover 60% of the land within its boundaries, housing demand due to in-migration from London and return out-commuting is "seemingly inexhaustible", and the county council has a strategic objective of reducing population growth.<sup>92</sup> In a report to members of the county council the chief planning officer explained the way in which projections are made for use in the wider context of local authority service provision:

"I do not project trends in the level of migration, but attempt to predict migration taking into account the factors which influence it, principally the increase in the local dwelling stock... Since my forecasts are policy - rather than trend-based, I consider that they represent a more accurate view of future population change..."<sup>93</sup>

Although by its very nature the capacity-led approach attaches over-riding importance to factors other than housing demand, issues still arise in its application. We have to consider the relationship between housing and land. We may express this relationship as follows:

$$DLP = \frac{DP}{ADD}$$

-where DLP = housing land provision

DP = dwelling provision

ADD = average dwelling density

Given an independent assessment of housing requirements a district planning authority would apply such a formula in preparing its detailed housing land allocation policies. In the capacity-led approach the coupling relationship may be reversed. Thus we may modify our original proposition : dwelling provision remains the independent variable in forecasting population, but dwelling provision may itself be regarded as a variable dependent on housing land provision.

An important issue arises regarding the assumptions made of future density, regardless of the dependency relationship between land and housing. This issue is analogous with the forecasting of the parameters linking employment and population : can density itself be regarded as an independent variable? In addition, a quasi-technical issue, specific to the capacity-led approach, arises in connection with assessing the amount of undeveloped land not subject to explicit policy restrictions.<sup>94</sup> Of course further complications arise since new dwellings may be built on redevelopment sites and sites presently accommodating non-residential development.

In the policy-based capacity-led approach, the constrained forecast of housing (or housing land) may be regarded as the "prime mover" in the overall forecasting framework. However commentators suggest that local authorities may not be explicit in the approach adopted in determining housing provision. PEIDA in their study of Scottish plans made the following observation:

".. Local authority forecasts have a tendency to mix analytical judgments and policy matters in a way which can be difficult to disentangle. That is, certain analytical judgments - for example on migration - can be adjusted on a policy-led basis. The justification of this procedure is that certain factors can be influenced by policy. It would, however, be far more constructive and helpful for policy and social/economic factors to be clearly separated in the analysis. Policy may legitimately require that 'market' forces should be restricted but such actions and their implications should be explicit. In this way, maximum agreement on analytical issues could be achieved."<sup>95</sup>

Thus in preparing a review of its Structure Plan, Kent County Council undertook what is referred to as a "demographic demand" assessment of housing requirements.<sup>96</sup> This assessment assumed that the observed trend of increasing net in-migration would continue, and was accepted by the House-Builders' Federation as making adequate provision to satisfy housing demand.<sup>97</sup> However the plan as submitted and considered at Examination in Public assumed lower levels of net in-migration, leading to an under-provision of 10,000 dwellings by comparison with the original assessment.<sup>98</sup>

Simiarly in Oxfordshire alternative scenarios based on an employment-led forecast of population and a natural change projection were tested, the former resulting in a higher housing requirement than the latter. Ultimately an intermediate forecast assuming a low level of net in-migration was selected.<sup>99</sup>

These approaches are not limited to the counties of the South-East. At the Examination in Public into a statutory alteration to the North Yorkshire Structure Plan the county council explained how a preliminary assessment of housing requirements was made based on the observed trend of net in-migration. However the county council considered this to be an inappropriate scenario, given an objective of reducing the pace of growth. Migration assumptions were therefore derived as a consequence of policy.<sup>100</sup>

Nevertheless it is in connection with the Structure Plans of the South-East that much of the concern regarding inadequacies in housing provision has been expressed. There is a widely held view that housing policies in the region are expressly motivated by political expediency. Although the most noticeable feature of sub-national population change in the 1960's and 1970's is a net flow of migrants from the urban areas to the suburban and rural areas,<sup>101</sup> various commentators have remarked on a reluctance on the part of both the exporting and importing authorities to allow this trend to continue.

One of the main concerns amongst house-building interests is that inadequate provision is made for new housing in the counties

surrounding London. The general view is that the councils concerned are responding to local opposition to development in order to safeguard electoral support - often referred to as a "not in my back yard" stance. Thus in 1987 Chiddick pointed to the apparent contradiction between the laissez-faire policy of the Conservative Party nationally, and the restrictive approach to development adopted at local levels<sup>102</sup>. He also contrasted public perceptions of party political positions as revealed by a survey of residents in the non-metropolitan South-East in 1986, the Conservative profile on defence of the Green Belt being much higher than that of the other parties.

Conversely, Dobson observed a concern on the part of Labour controlled councils in metropolitan areas that further out-migration would result in the erosion of their rate base.<sup>103</sup> However notwithstanding the desirability or otherwise of stemming the trend, the capacity of such areas to accommodate even a natural increase in their population might be limited simply because most of the land there would already have been developed.

There exists considerable anecdotal evidence regarding the "political" determination of current housing provision in Hampshire, and in 1990 Roger Lawes of the county planning department commented that:

"Hampshire is in the vanguard of the member-led approach to housing requirements".<sup>104</sup>

North-East Hampshire, and the district of Hart in particular,<sup>105</sup> had experienced a rapid and sustained increase in population since the early 1960's and the capacity-led approach was adopted in the North-East Hampshire Structure Plan (Second Alteration). In preparing draft proposals for discussion with the districts the point was made that:

".. if it were possible to reduce net migration into North-East Hampshire in the 1990's to zero the number of households in the area could still increase by just under 16,000".<sup>106</sup>

In fact when the plan was prepared and submitted to the Secretary of State it made provision for less than 12,000 dwellings,<sup>107</sup> implying net

out-migration. Where are these out-migrants supposed to live? To answer this question we must consider the strategy for the county as a whole. At this level the approach involved making a forecast of nil net migration and using the resulting population projection as a basis for assessing housing requirements.<sup>108</sup> However this in itself was an indicative forecast, since it sought to buck an established trend of net migration into the county.

This approach may be seen as a variant of the capacity-led approach. Its appeal in terms of justifying policies to the local electorate is obvious. It carries with it an implicit assumption that new housing development in the county will satisfy only "locally generated demand" or "local housing needs" - that is, the future housing requirements of the existing resident population. This is of course a highly dubious proposition and is acknowledged as such by planners in the county council.<sup>109</sup> It implies that the indicative forecast of nil net migration will be achieved by the elimination of gross in-migration. However the existence of the trend of net in-migration indicates the capacity of persons formerly resident outside the county to exercise effective demand for private dwellings within it. How else could such a trend have occurred? Past in-migrants are unlikely to have satisfied the "needs" criteria for access to local authority or housing association accommodation, and the private rented sector in districts such as Hart is all but non-existent.<sup>110</sup>

There is no reason to expect that gross in-migration will cease. Of course we are mindful that if the resident population is able to compete in the market they will continue to live there. We would also acknowledge that this may be likely in the context of a prosperous southern county. However we must further acknowledge that the existing resident population of any area will not represent a homogeneous group, and some elements will be unable to compete with would-be in-migrants. There is no reason then to suppose that an indicative forecast of nil net migration will be achieved by a reduction in gross in-migration : if it is met at all it may depend on an increase in gross out-migration.

Aware that market forces may work to the detriment of local residents securing accommodation in the future, local planning authorities have sought to intervene. Given that they lack direct implementational powers they have sought to introduce specific "local housing needs" policies whereby the grant of planning permission is conditional upon the size and type of a dwelling, and/or the characteristics of its future occupants. However since 1980, Structure Plan policies to this effect have invariably been deleted on consideration by the Secretary of State, and they appear only as unenforceable statements in the supporting text.<sup>111</sup> The application of occupancy planning conditions was outlawed in 1985,<sup>112</sup> although there are signs that a more flexible approach (addressed in the case-studies) is presently emerging.

Having made reference to the methods of East Sussex, Kent, Oxfordshire and Hampshire, we now briefly consider those used elsewhere in the South-East. In Essex and Surrey the metropolitan Green Belt is regarded as a particularly strong constraint and housing provision is determined in this context.<sup>113</sup> In approving the 1988 West Sussex Structure Plan the Secretary of State recognised that the county could make only a limited contribution to meeting general market demand.<sup>114</sup> In Hertfordshire an assumption of nil net migration was made.<sup>115</sup> Berkshire had sought to curb housing development but in approving its Structure Plan in 1988 the Secretary of State proposed modifications resulting in a substantial increase in provision, despite opposition from a wide range of groups locally.<sup>116</sup> In Buckinghamshire Milton Keynes was designated a strategic growth area, whilst a capacity-led approach was adopted in the south of the county.<sup>117</sup>

An issue therefore arises regarding whether Structure Plans prepared in isolation fail to make adequate provision for population growth in the region as a whole.<sup>118</sup> This has in turn rekindled an interest in regional planning,<sup>119</sup> and regional planning guidance prepared by SERPLAN and issued by the Secretary of State addresses the question of housing requirements at this level. The distribution of housing provision between the constituent counties is based on a range of factors including regional and county strategies, trends in building rates, and a distribution proposed by the House-Builders' Federation, each of which is explicitly weighted.<sup>120</sup>

In theory the regional approach provides an excellent mechanism within which to reconcile the policies of the different counties. In practice however there inevitably arise differences of opinion regarding the weightings to be given to the various factors,<sup>121</sup> and it is axiomatic that building a consensus at the regional level requires co-operation from a greater number of interests than at the county level.<sup>122</sup> Furthermore while there is a requirement that the guidance be considered in the preparation of Structure Plans it is not prescriptive and the incorporation of its provisions is not obligatory.<sup>123</sup>

One of the issues we have not so far considered in the context of restraint policies is the relationship between population and employment. This is an issue at the regional and inter-regional level: SERPLAN takes the view that the "Greater South-East" is becoming a reality, with rapid growth in the counties adjacent to the region and an extension of the London commuting area.<sup>124</sup> Various commentators have addressed the difficulties faced by the unemployed in moving to the region to seek job opportunities.<sup>125</sup> The issue also arises at the local level : in reconciling the population and employment forecasts in the North-East Hampshire Structure Plan, the assumption was made that the high level of net out-commuting from the area would fall dramatically. The House-Builders' Federation considered this "scarcely credible" given that neighbouring Berkshire was pursuing much the same approach.<sup>126</sup> Clearly, if a fall in net out-commuting cannot be achieved by a reduction in gross out-commuting, then it can only be reduced by an increase in gross in-commuting.

Concern has similarly been expressed regarding the implications of planning policies in the region for economic growth. Notwithstanding the possibility of a labour shortfall with respect to the employment forecast in the aforementioned plan, the Department of Trade and Industry took the view that the latter forecast was itself excessively low, given the economic buoyancy of the area.<sup>127</sup> One of the arguments against a trend-based approach to migration forecasting is the failure to account for causal factors: another argument is that the trend may be constrained by past policies. However if employment growth is being constrained in certain areas, we also have to ask whether future employment projections based on observed data will represent "unconstrained" forecasting scenarios.

There is perhaps a more fundamental issue however, and one which enables us to view the policies of counties in the South-East from an entirely different perspective. Coopers and Lybrand consider the responses of firms to planning policies aiming to channel growth to particular parts of the region:

"... Companies will establish in such parts of the South East only if there is positive reason (i.e. clear benefits) to do so. For many firms, this is not the case, and the result has been to push parts or all of their operations to other parts of the UK".<sup>128</sup>

Is this not desirable? County councils in the region are concerned regarding the implications of continued in-migration for the environment and the nebulous concept of "quality of life". Would the active fostering of an inter-regional push/pull trend in employment not represent a viable alternative - or has this been tried and failed? Clearly this raises a whole host of questions which are beyond the scope of this thesis - not least regarding the extent to which growth may be "diverted" abroad.

In this section we have focused on indicative forecasts of a restrictive nature. However before drawing the chapter to a conclusion we must acknowledge that forecasts may also assume the successful outcome of policies aimed at stemming net out-migration.<sup>129</sup> Such forecasts may typically be made in areas of economic decline and be supported by policies of employment and housing stock regeneration. Hipkins and King assess the possible implications of this approach.<sup>130</sup> A "localised effect" may occur, with an over-provision of land for housing resulting in unnecessary urban sprawl, inefficiencies in infrastructure use, and the inhibiting of the development of sites for other purposes. In addition a "strategic effect" may occur since making provision for population growth in one area may risk under-provision elsewhere in a county or sub-region.

There is a dilemma here. If the proposed policy initiatives were successful in reversing a trend of net out-migration, then it is axiomatic that an assessment of housing requirements based on the past trend would be inadequate. What must be considered is whether the

successful outcome of the policies represents a realistic scenario. In this there may be a political dimension at the local level : realisable long-term objectives may conflict with politicians requiring a "quick fix" to local economic problems.<sup>131</sup> There may also be a political dimension at the national level. Writing prior to the recession of the early 1980's, Wenban-Smith contrasted "official" forecasts of limited growth with the "apocalyptic" forecasts of interest groups and academics.<sup>132</sup> The point was made that the Secretary of State in approving Structure Plans may be unwilling to acknowledge an "apocalyptic" future. We may also contemplate a confidence effect : acknowledging a pessimistic future may itself inhibit inward investment and further damage prospects for economic recovery.

## 2.8 CONCLUSIONS

In the first part of this chapter we focused our attention on the cohort survival model of population projection. We examined the structure of both the single and multi-region variants and acknowledged the importance of ensuring mutually consistent projections for different areas. We considered the OPCS model as an example of the multi-regional variant and discussed its key features.

We addressed in detail the data requirements of cohort survival models. The different definitions used in estimating the size of the existing population were discussed and we considered the difficulties involved in producing reliable estimates for inter-censal years. We explored the methods used by OPCS in its projections of mortality and fertility rates, which may themselves be regarded as data sources for operationalising the models used by local authorities. The particular difficulties of identifying current trends in migration were highlighted.

We explored the relationship between population and employment. The main approaches to forecasting employment - simple extrapolation, shift-share analysis, economic base analysis and input-output analysis - were discussed. The difficulties associated with forecasting the parameters linking the two activities were acknowledged and the issue

of spatial scale considered. The issue of policy interdependence was addressed and an insight gained into planning practice in the South-East. The use of the capacity-led approach to housing provision was discussed.

Forecasting is by nature an uncertain activity and historically the record on population forecasting in the UK at both local and national levels has not been good.<sup>133</sup> Elsewhere it has been argued that the simple direct extrapolation techniques referred to at the very start of this chapter will produce forecasts as accurate as either employment-led or pure demographic cohort survival models:<sup>134</sup> each rely on trend extrapolation at some stage of their operation, and each involve the fitting of similar functional forms to the observed data. Given the prescribed role of Structure Plans in providing a long-term framework within which to prepare Local Plans such perspectives are hardly inspiring.

Some commentators have remarked upon a shift away from the use of employment forecasts as a means of assessing likely population growth, attributing this to a failure of forecasters to predict the economic changes of the early 1980's on the one hand, and the inadequacy of employment data on the other.<sup>135</sup> However although the frequency of the employment census has been reduced from an annual to a three year survey, this latter argument remains unconvincing. Internationally, the shift away from highly theoretical integrated forecasting systems has been attributed to perceptions that public and political interest is geared to the short-term,<sup>136</sup> and the desirability of retaining an element of transparency so as to facilitate consultation exercises.<sup>137</sup>

The cohort survival model enables the components of population change to be separated out and considered in a logical manner, while the integration of population and employment models enables explicit consideration to be given to a key factor influencing migration. However employment need not be the sole determinant of migration across a county boundary. While population movement may be "employment-led", employment may itself be "population-led", and the lack of theory regarding the inter-relationships between the linking parameters is

disturbing. Moreover, while counties such as Hampshire and East Sussex acknowledge that their forecasts of population growth are lower than would be expected in the absence of policy constraints, there is a concern that authorities do not always explicitly state the basis on which their housing provisions are determined. In recognition of this the House-Builders' Federation has since 1985 used the Chelmer Population and Housing Model - a demographic model developed at Chelmer Institute of Higher Education and funded by the Housing Research Foundation - to interrogate proposed policies.

A local authority may test a number of population forecasts against an assessment of the amount of land it is prepared to release, and may determine its housing policies on the basis of migration assumptions which satisfy this criterion. This procedure may - or may not - mean that provision for population growth is constrained by "non-demand" policy factors. A major task of the case-studies later in the thesis must therefore be a detailed evaluation of the assumptions made regarding migration in Structure Plans and a sensitive consideration of the factors taken into account in their formulation.

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### 3. THE DEMOGRAPHIC APPROACH : PART II - HOUSEHOLDS AND HOUSING REQUIREMENTS

#### 3.1 INTRODUCTION

In the first part of this chapter we consider approaches to household projection. We start by introducing the headship rate framework, specifying the relationship between the size of the population and numbers of households, and indicating ways in which disaggregation may be achieved. We proceed by considering census definitions of households and household types and discuss the "potential households" concept, an established mechanism for use in assessing housing need. The normative basis of the concept is examined in the light of household preference research undertaken elsewhere, its relevance considered, and its application in forecasting discussed.

The Department of Environment uses the headship rate method in its biennial projections of households at national and county levels. We appraise the development of the DoE's method of headship rate extrapolation and consider the data used in calibration. The means by which adjustments are made to input population projections, which relate principally to the need for disaggregation by marital status, are examined. The mechanism for standardising projections of headship rates is specified.

The adequacy of the DoE's approach is discussed in the context of recent trends. Alternative approaches to headship rate projection involving econometric analysis and dynamic methods are considered. Household flow analysis is discussed. Factors influencing patterns of family and household formation are considered, and an alternative analytical framework based on "Minimal Household Units" is examined. Issues of data availability are addressed, and the usefulness of the framework for projection purposes is discussed.

In the second part of the chapter we consider the additional components required in an assessment of housing requirements. Data issues arising in connection with dwelling stock estimation are

examined. Approaches to forecasting losses to the existing stock are debated and the issue of policy interdependence is addressed. Reasons for the existence of vacant dwellings are considered and approaches to forecasting vacancy rates discussed. The relationship between the component elements in an assessment of housing requirements is expressed in algebraic form.

### 3.2 AVERAGE HOUSEHOLD SIZE AND HEADSHIP RATES

The most basic method of household projection besides simple extrapolation is the average household size method. Average household size computed from observed data, projected, and applied to the population projected in an area.

$$AHS = \frac{P}{H}$$

- where AHS = average household size

P = population

H = households

The simplicity of the method is its strongest point. No disaggregation is involved, projections may be made without the use of a computer model, and a range of alternative assumptions can be tested quickly. Internationally the method has been widely used and has proved particularly useful where the available data is extremely limited.<sup>1</sup> Early planning efforts in the UK also relied heavily on the method, together with a variant approach linking housing land and population directly (via an average population density),<sup>2</sup> thereby obviating the need for a household projection altogether.

However the simplicity of the method also gives rise to a major weakness. If average household size is forecast by extrapolating the past trend, then no account is taken of a change in the age/sex-structure of the population, and this may be expected to have an effect on the future number of households.

Index methods relate numbers of households to the size of a particular element within the population and have also been used in studies where

data is limited.<sup>3</sup> They were first used for projection purposes in the UK in the 1931 census, in which a range of forecasts were made on the assumption that the number of households was closely related to the number of married women in the population.<sup>4</sup> At the time these forecasts were considered innovative in that they acknowledged change in the population structure, although they did so only in a very limited way.

The prototype headship rate method was developed by the United States National Resources Planning Committee in the 1930's<sup>5</sup> and the approach was first used in the UK in the 1950's. A headship rate can be defined as the proportion of persons in a particular group who head a household. Since a household head is uniquely associated with a particular household, heads of households and households themselves are equal in number. It follows then that the overall (crude) headship rate is the inverse of the average household size.

Disaggregation in the headship rate method may be achieved in a number of ways, most typically by specifying rates by age and sex, but also in some cases by marital status. In the DoE's model a further distinction is made between heads of households of different type. The rates are therefore computed as follows:

$$HSR_{iasm} = \frac{H_{iasm}}{P_{asm}}$$

- where  $HSR_{iasm}$  = specific headship rate

$H_{iasm}$  = household heads of age a, sex s, marital status m, heading a household of type i

$P_{asm}$  = population of age a, sex s, marital status m

This approach therefore allows for full account to be taken of changes in the population structure over a projection period. The output derived by applying the rates to a population projection is in the form of households of each type, by age, sex and marital status of head, and can be re-aggregated in various ways. In projection different functional forms may be applied to the observed data for each of the specific rates, enabling different trends in headship to be acknowledged. This is one of the reasons for the DoE's specification of headship rates by marital status and household type.

A second reason is the historic policy emphasis placed upon satisfying the housing needs of particular social groups. This will be a subject for study in the next section.

The computing and data requirements are obviously greater than those of the simple average household size method. In addition to the two-way split by sex and three-way split by marital status (single, married, widowed/divorced), the DoE presently undertakes projections by fifteen age categories nationally and four sub-nationally (15-29, 30-44, 45-59/64 and retired), and by six types of household with a seventh category of "non-heads".<sup>6</sup> Furthermore, expressing the rates by marital status means that the population input into the DoE's projections of households must be similarly disaggregated.

Further issues arise. Firstly, the method does not produce projections of households by size, although these may be crudely estimated by extrapolating past trends.<sup>7</sup> Secondly, the concept of headship may itself be disputed, particularly in those cases where the household comprises a group of unrelated adults.<sup>8</sup> Internationally censuses and surveys in the future may no longer seek to establish who is "head" of a household, and in recognition of these issues variant approaches have been developed, notably the household membership rate method:

$$HMR_{az} = \frac{P_{az}}{P_a}$$

- where HMR = household membership rate

$P_a$  = population of age a

$P_{az}$  = population of age a in households of size z

Household membership rates can be projected (subject to the constraint  $\sum_z HMR_{az} = 1$ ) and applied to a projected population disaggregated by age. A projection of population by household size can therefore be derived, and hence a projection of numbers of households of each size. This method is used in official projections in Germany, in conjunction with the "classical" headship rate method.<sup>9</sup>

### 3.3 THE POTENTIAL HOUSEHOLDS CONCEPT

The objective of the 1945 Housing Act that provision should be made for "a separate dwelling for every family that wishes to have one" made housing need part of the vocabulary of housing policy and has had a considerable and long-lasting impact on approaches to forecasting. For example, DoE guidance to housing authorities in 1977 indicated that:

"The Census definition of a household is not ... entirely satisfactory for estimating dwelling requirements because it does not include those households who are prevented from forming by lack of housing or other reasons, while it includes households currently sharing a dwelling and not wishing to occupy a separate dwelling of their own."<sup>10</sup>

"Census-type households" comprise the following units:

- married couple households : household headed by married couple - conventionally the husband is assumed head - with or without children;
- lone parent households : a household headed by a lone parent living with one (or more) never-married child(ren);
- one-person households : a person living alone and falling within the general definition of a "household" (discussed below);
- "other" households : a household not falling within any of the categories above.

The total number of census-type households may therefore be calculated as follows:

$$CH = MCH + LPH + OPH + OTH$$

- where CH = census-type households

MCH = married couple households

LPH = lone parent households

OPH = one-person households

OTH = "other" households

The DoE undertakes projections of headship rates for each of these types of household, and the operation for deriving a projection of the total number of census-type households can therefore be summarised as follows:

$$CH_{t1} = \sum_a \sum_s \sum_m \left[ (HSR_{(mch)asmt1} + HSR_{(lph)asmt1} + HSR_{(oph)asmt1} + HSR_{(oth)asmt1}) (P_{asmt1}) \right]$$

- where HSR = headship rate

P = population

t1 denotes year for which projections are made

a, s, m denote respectively age, sex, marital status

mch, lph, oph, oth denote household types as above

There exists a long established formula for converting census-type households into "potential households" as a basis for assessing housing need.<sup>11</sup>

$$PH = CH + CONMC - \frac{3}{4} OPHS$$

- where PH = potential households

CONMC = concealed married couple families

OPHS = one-person households sharing a dwelling

The first assumption in the formula is that all concealed married couple families - that is, couples living in a household headed by another person - are in need of a separate dwelling. The second assumption is that three-quarters of one-person households sharing a dwelling do so willingly - a purely arbitrary assumption.

The DoE computes and projects headship rates for concealed married couple families and for concealed lone parent families. The projection of concealed married couple families is therefore derived by:

$$CONMC_{t1} = \sum_a \sum_s \sum_m (HSR_{(conmc)asmt1}) (P_{asmt1})$$

The ex post projection of married couple households therefore comprises two elements : the projection of concealed married couple families and the ex ante projection of "census-type" married couple households.

A number of issues arise in the treatment of those households who are assumed willing to share a dwelling however. Firstly, while earlier techniques sought to project headship rates specifically for one-person "potential" households (that is, discounting for those assumed willing to share), the approaches were crude<sup>12</sup> and the adjustment is no longer made. This means that if a local authority is to make a deduction for "willing sharers" on independent projection of their number must be made. Alternatively an adjustment may be made to the base year estimate : the 1981 census contains a count of the number of households in "not self-contained accommodation". Thus:

$$PH_{t1} = CH_{t1} + CONMC_{t1} - \frac{3}{4} OPHS_{t0}$$

- where t1 denotes the projection year

t0 denotes the base year of the projection period

A second issue which we must address is that the formula excludes households who are willing to share a dwelling altogether. An element of housing need will be associated with the social units formed by the consolidation of these households. An adjustment must therefore be made to the formula, requiring the application of an occupancy rate. Thus:

$$PH_{t1} = CH_{t1} + CONMC_{t1} - \frac{3}{4} OPHS_{t0} + \frac{1}{OR} \left( \frac{3}{4} OPHS_{t0} \right)$$

- where OR = occupancy rate expressing number of sharing households: number of shared dwellings.

The third question is whether it is still valid to make the assumption that a proportion of "sharing households" do so willingly. We have already made reference to the different types of census household and we have acknowledged that the census definition of a household provides an inadequate basis for assessing housing need. However this definition has itself been changed since the potential households formula was devised.

In the 1961 census a household was defined as "one person living alone or a group of people living together, partaking of meals together and benefiting from a common housekeeping".<sup>13</sup> This "common housekeeping"

definition was applied with only slight modifications in the 1966 and 1971 censuses. However in 1981 the definition was extended to include not only a group of persons sharing housekeeping and a regular daily meal, but also those sharing a common living room.<sup>14</sup>

This new definition was introduced for the specific purpose of classifying a group of unrelated persons who might eat separately but maintained a fairly clear group identity as a single "other" household, as opposed to several distinct one-person households.<sup>15</sup> This means of course that the number of one-person households recorded as such under the new definition will be lower than the number recorded had the old definition been retained. Furthermore we may take the view that those persons who, as a group, fail to satisfy the new definition are likely to be precisely those who are least willing to share. There is therefore a strong argument for abandoning that element of the potential households formula which makes an assumption that some households share willingly.

There is another issue which concerns the comparability of the statistics of different censuses : we would expect the re-classification to have a distorting effect. However it has been suggested that census form-fillers in 1971 were basing their responses on their own perceptions of a "household", and that the change in 1981 simply served to bring the formal definition into line with the field situation.<sup>16</sup> This does not invalidate the view that the existing potential households formula is inadequate : rather it implies that its inadequacy pre-dates 1981.

We might therefore conclude that the potential households formula should be modified such that:

$$PH = CH + CONMC$$

- where PH = potential households

CH = census-type households

CONMC = concealed married couple families

## The Relevance of the Potential Households Formula

Our analysis up to this point has been confined to investigating the operational difficulties in applying the formula, and the revision of the formula, so as to bring it into line with the change in definition of a household. However we must also consider its relevance as a way of defining housing need. The only type of "concealed" social unit deemed to be in need of a separate dwelling at a particular point in time is the concealed married couple family. However concealed lone parent families may have a similar preference. Indeed it is perhaps surprising given the policy objective of the 1945 Housing Act that no allowance was made for this element.

More significant is the complete lack of recognition of the preferences of other types of concealed social unit. We may in particular contemplate the notion of a "concealed single person". We have already acknowledged the grouping together of unrelated persons as a single entity. However individuals within such a group may still have a preference to live alone. Consider also the case of a young adult, living in the parental home. If the father is registered as head of household then a single married couple household will be recorded : any preference the offspring may have for living independently is ignored. In fact the 1977 guidance to which we made reference earlier in this section itself goes on to state:

"The 'potential household' concept was never intended to be a measure of housing demand in the economic or social sense, and makes no attempt to take into account the needs of individuals or groups other than families who would like to form separate households of their own."<sup>17</sup>

The proposition that making provision for an amount of house-building sufficient to meet the needs of those defined as being "in need" will actually result in the satisfaction of these needs is extremely dubious.<sup>18</sup> If the concealed units not deemed to be "in need" had not only a preference to live in separate dwellings but also the ability to exercise effective demand, competing successfully with concealed married couples and persons presently sharing a dwelling, then the needs of these latter groups would remain unsatisfied.

In 1950 Glass and Davidson attempted to establish an upper limit to the number of households which might seek to live in separate dwellings, determined by the total number of "biological" families.<sup>19</sup> However if we sought to construct a revised potential households formula which encompassed the possible preferences of concealed lone parents and all adult single persons to live in separate dwellings we would ultimately arrive at:

$$PH = CH + CONMC + CONLP + CONSP$$

- where PH = potential households

CH = census-type households

CONMC = concealed married couple families

CONLP = concealed lone parent families

CONSP = concealed single persons

- in which concealed single persons are defined as adults

who are not the head of a census-type household,

a concealed married couple family, or a concealed

lone parent family, and not the spouse in a married couple.

It is obvious that the application of this formula would yield an estimate of "potential" households far in excess of the standard definition. It represents an extreme position and is not in itself particularly helpful: we would rapidly approach an assumption of an adult headship rate of one. In Glass and Davidson's study, survey evidence was used to construct two alternative potential households formulae with which to distribute families between households. A comprehensive survey of attitudes regarding separate accommodation was undertaken by OPCS in the late 1970's, but the findings did not become available until the mid-80's.<sup>20</sup> Instead it is possible to gain a more up to date perspective on the preferences of concealed units from the results of the London Housing Survey, conducted by the London Research Centre in 1986-87. It was estimated that the numbers of concealed units in London as a whole were as follows:<sup>21</sup>

Concealed married couple families	28,000
Concealed lone parent families	14,000
Concealed single persons	873,000

Of these concealed units, the numbers wishing to live separately from their "host" households were as follows:<sup>22</sup>

Concealed married couple families	22,000
Concealed lone parent families	10,000
Concealed single persons	242,000
Concealed "other" units	14,000
Total	288,000

It is possible to use this information to construct an alternative potential households formula. The figures indicate that the following proportions of concealed units have a preference to live separately:

Concealed married couple families	79%
Concealed lone parent families	71%
Concealed single persons	28%

An example of a concealed "other" unit wishing to live separately from the "host" household might include a group of single unrelated persons who are themselves willing to live together. The total number of concealed "other" units is immeasurable, since an "infinite" number of permutations of living arrangements is possible. Here we will assume that the number of "other" units wishing to form is related to the total number of concealed single persons. Expressing the former as a proportion of the latter gives us a ratio of 2:100. On this basis we can construct the following formula:<sup>23</sup>

$$PH = CH + \frac{79}{100} (CONMC) + \frac{71}{100} (CONLP) + \frac{30}{100} (CONSP)$$

This formula is not satisfactory, since those concealed units who wish to separate from a "host" household may themselves wish to amalgamate with other units. The survey suggested that approximately 247,000 households could be formed in this way. Expressing amalgamated households as a proportion of concealed units wishing to separate from "hosts" (288,000) gives a ratio of 86:100. This means that the formula can be adjusted as follows:

$$PH = CH + \left[ \frac{79}{100} (CONMC) + \frac{71}{100} (CONLP) + \frac{30}{100} (CONSP) \right] \left( \frac{86}{100} \right)$$

$$PH = CH + \frac{68}{100} (CONMC) + \frac{61}{100} (CONLP) + \frac{26}{100} (CONSP)$$

There are a number of issues which must be considered in connection with this formula. Firstly, the sample size was small : the total number of concealed units which provided a base from which to survey

preferences was 1,112.<sup>24</sup> Secondly, even if the formula could be assumed valid for London as a whole, it may not be applicable elsewhere. Thirdly, we would expect the degree to which concealed units have a preference for living in separate accommodation to be influenced by the nature of the relationship with the head of the "host" household. We would also expect this to be influenced by the type and size of the accommodation presently occupied. We should also acknowledge that some persons presently living as separate households may wish to live as part of a single larger household if a larger dwelling were available.

Fourthly, preferences have been shown to vary considerably between age-groups.<sup>25</sup> This means that the validity of the formula will be diminished if applied to an area with a radically different population structure amongst concealed units. Fifthly, the rate at which concealed units wish to amalgamate will be dependent on personal circumstances and the mix of concealed unit types in the area. For example, two single persons from different "host" households could reasonably be considered more willing to form a single new household than two concealed married couple families.

Finally, preferences expressed in surveys will themselves be conditioned by what is perceived as realistic given individual circumstances, the nature of the housing market, and knowledge of public sector and housing association policies. These factors will vary between different areas and will themselves change over time. This, of course, is a fundamental problem encountered when seeking to establish any normative standard .

While these caveats are important and must be acknowledged one key observation can readily be made. The survey indicates that 247,000 households could be formed by concealed units wishing to live separately from the existing "hosts". The total number of concealed married couple families is 28,000. Clearly, the application of the standard potential households formula is, in London at least, a wholly inadequate mechanism for determining the number of dwellings required to meet present preferences.

The formula constructed above may provide a useful tool in assessing the scale of need amongst the existing population of other large metropolitan areas, and formulae constructed from the findings of survey work undertaken elsewhere could have similar benefits. However the integration of such formulae with a projection of census-type households is not a satisfactory way of assessing future need. While the standard potential households technique is demonstrably crude, arbitrary and inadequate, the formula constructed above reflects market conditions and the distribution of persons between households at a particular point in time. "Bolting on" any formula of this kind to an ex ante projection of census-type households is conceptually highly inelegant, and we must turn our attention now to the methods used in projecting household headship rates themselves and the assumptions underpinning these methods.

### 3.4 HEADSHIP RATE PROJECTION AND APPLICATION

Early attempts to project households with the specific headship rate method assumed that the rates would remain constant over time.<sup>26</sup> A comparison between the 1931 and 1951 censuses indicated considerable similarities, while in the United States rates had changed little since the late 19th Century, despite a substantial increase in the standard of living.<sup>27</sup>

The early 1960's saw substantial increases in headship rates for most categories, which the then Ministry of Housing and Local Government (MHLG) attributed principally to social factors and economic growth over the period. The MHLG's projections of the late 1960's involved applying linear and negative exponential functional forms to 1961 and 1966 census data. The approach still relied heavily on judgment. The application of the negative exponential form was generally preferred, principally because the economic conditions of the past years were thought unlikely to continue while linear assumptions tended to generate "unreasonable" projections. In addition, in some particular categories, a linear extrapolation was not a viable option since it would have led to headship rates in excess of one. The projection of sub national rates was more subjective, and at sub-regional levels in particular, projections were acknowledged to be largely arbitrary.<sup>28</sup>

More recently more sophisticated methods have been developed by the DoE, and data from the 1971 and 1981 censuses has been incorporated as it has become available. Various methods were used in the 1970's, involving the application of linear and exponential forms depending on the configuration of headship rates at the three census observations. However with the availability of data for a fourth census year a new model was built so as to satisfy a number of criteria, notably that:

- it could be applied to any number of observations;
- the same functional form could be applied regardless of the data configuration (enabling projections at county level to be made quickly and on a comparable basis);
- the extrapolation curves could be constrained to fit the data recorded at each observation;
- the curves could be constrained such that headship rates would fall between 0 and 1.<sup>29</sup>

Rainford and Masser attribute the wide use of DoE headship rates and their acceptance as independent technical evidence at Examinations in Public to the relative sophistication of the model.<sup>30</sup> In addition the Chelmer Population and Housing Model (CPHM) used by the House-Builder's Federation (HBF) to evaluate Structure Plan assessments of housing requirements itself uses the projections as a data input. Whilst the CPHM was originally developed to penetrate the "black box" of local authority forecasts and to enable the HBF to converse with planning authorities on equal terms, there can be little doubt that it has effectively reinforced the headship rate method as the accepted "language" of housing requirements.

Moreover the DoE's model for projecting headship rates can itself be criticised as being a "black box" in its failure to have regard to the determinants of headship rate change. This criticism is generally accepted: there is no theoretical justification for the choice of functional form (a hyperbolic tangent function), save that the curves can be scaled to satisfy the constraint that  $0 < \text{HSR} < 1$ .<sup>31</sup>

We shall return to these issues later in the chapter. First we consider the data used in projecting headship rates and their

application to population projections. We have already indicated that the census is the principal data source and have discussed issues of household definition. OPCS processes "hard-to-code" topics such as headship on a 10% sample basis so as to reduce costs. However while a 100% sample may be considered preferable, the 10% sample is far more satisfactory than the sample sizes provided by alternative sources, and in 1971 procedures were introduced to ensure an accurate geographical spread.<sup>32</sup>

Headship rates are computed from the usually resident private household population base. This is derived by deducting the non-private population from the total usually resident population. The non-private population comprises persons in such accommodation as hotels, hospitals, educational and defence establishments, prisons and hostels, as well as persons "sleeping rough".<sup>33</sup>

The major problem in relying on the census is its frequency. On the one hand it may be argued that the four observations are insufficient as a basis for projection. On the other hand it may be argued that data recorded in 1961 and 1966 has little relevance to current trends in headship, although the 1971 and 1981 data points are weighted in the model to emphasise more recent developments.<sup>34</sup> A further problem is that the data for the earlier years is only available for broad age-groups at sub-national levels.

The DoE's household projections from a 1985 population base supplemented the census with data from the Labour Force Survey (LFS) for years 1983 to 1986. The incorporation of this information allows the projections to respond more promptly to inter-censal change in social structure, although the sample size is small (between 0.2 and 0.4%).<sup>35</sup> For this reason the LFS headship rates are controlled as follows:

$$THSR_t = CHSR_{81} + (LHSR_t - LHSR_{81})$$

-where  $THSR_t$  = "target" headship rate for a year, 1983-86

$CHSR_{81}$  = census-based headship rate for mid-1981

$LHSR$  = Labour Force Survey headship rate

Further procedures are required to decompose the LFS-based "target" rates since they are specified by sex and broad age-group only.<sup>36</sup> The rates are used directly only in projections for England and Wales, to which the sub-national projections are controlled. The LFS data indicates higher crude headship rates than would otherwise have been expected.

We now consider the population input used in the DoE's household projections. This is provided by the OPCS projections (considered in Chapter Two), disaggregated by marital status by applying projections of marital status rates supplied by the Government Actuary's Department. The approach involves forecasting transitional rates expressing the probability of movement between different status categories. Forecasting raises a number of complex technical issues, not least in the need to produce consistent sets of disaggregate population projections. Much subjective judgment is involved and it has been accepted that the transitional rates are not projected with the same vigour as other elements of demographic modelling,<sup>37</sup> while controls are applied somewhat artificially.<sup>38</sup> A further issue is that since the projections of status rates are made for England and Wales only, assumptions have to be made regarding local differentials. Current DoE practice is to assume that these will remain constant at observed census levels, although it is acknowledged that this assumption becomes very approximate in later projection years.<sup>39</sup>

The marital status assumptions in the 1985-based projections take account of trends over the period since 1971. This period witnessed a steep fall in marriage rates, particularly amongst the under 30's, and a considerable increase in divorce rates.<sup>40</sup> Another important concern is the increasing trend in cohabitation, since the behaviour of cohabitees with regard to housing choices may resemble that of married couples. Although detailed statistics regarding de facto marriages are difficult to obtain, the problem may be ameliorated by the proposed incorporation in the 1991 census of an additional status category applicable to such relationships.<sup>41</sup>

The uncertainty associated with projecting marital status rates at sub-national levels has led some local authorities to compute composite headship rates, based on the DoE's projections, and standardised for marital status.<sup>42</sup> This operation can be summarised as follows:

$$HSR_{iast1} = \frac{\sum_{smt1} H_{iasmt1}}{\sum_{smt1} P_{asmt1}}$$

in which  $H_{iasmt1} = (HSR_{iasmt1}) (P_{asmt1})$

- where  $HSR_{iasmt1}$  = DoE's projected headship rate for year t1
- $P_{asmt1}$  = population projection to which DoE applies headship rate
- $H_{iasmt1}$  = DoE's projection of household heads
- $HSR_{iast1}$  = projected headship rate for year t1, standardised for marital status
- i,a,s,m denote respectively household/family type, age, sex, marital status

The implicit assumption here is that the population projection to which the local authority subsequently applies the standardised rates would be distributed between status groups in the same proportions as the population input used by the DoE. Standardising rates for other categories of specification (age or sex for example) may be achieved by a similar operation.

We must acknowledge another adjustment made to the input population projection used by the DoE. This concerns a deduction for the non-private household population, which is assumed to remain constant in size and structure at census level. Arguably such assumptions may be criticised for not taking account of changing trends and policies - "care in the community" for example. They may also be criticised on the basis that persons who may be regarded as being in particular housing need are excluded. In addition the census estimate is of the "enumerated" rather than "usually resident" non-private household population. On the other hand the census provides the sole comprehensive source of information here. Moreover it has been shown that the number of persons in non-domestic accommodation remained reasonably constant between 1971 and 1981, and while area variations do exist the size of this element is generally small.<sup>43</sup>

Finally we must remember that the OPCS projections are based on the mid-year estimates of population. If a local authority were to apply headship rates to a projection based on the census usually resident population, an adjustment would be required to allow for households not recorded by reason of their being "wholly absent" on census night.

We should also acknowledge Raine's assessment that migration represents the real "key" to patterns of headship rate variation.<sup>44</sup> This means that an additional degree of uncertainty arises in applying projected headship rates where future migration trends are expected to differ from past trends. Consider also the application of headship rates where an indicative forecast of nil net migration is made in the light of a strong trend of in-migration (as discussed in Chapter Two). Subsequent house-building may result neither in a fall in gross in-migration, nor a rise in gross out-migration, but in "out-turn" headship rates lower than expected.

In concluding this section we note that the headship rate method is generally acknowledged as the only method of household projection to have gained worldwide acceptance.<sup>45</sup> Its wide use can be attributed to its relative simplicity and its minimal data requirements in comparison with more advanced approaches. In the UK increasingly sophisticated methods of headship rate projection have been developed, although these methods have been criticised for being mechanistic. However:

"From a different point of view it can be argued that there is something to be said for the objectivity lent by the mechanical extrapolation of headship rates, particularly in the situation where there are vested interests in higher or lower projections".<sup>46</sup>

Nevertheless, while constancy assumptions in headship rates have long been rejected as inadequate, commentators have observed that the projections of the 1970's still failed to allow for the substantial increases in one-person households and lone parent households which actually took place.<sup>47</sup> Crude headship rates have continued to rise both at home and internationally,<sup>48</sup> and we must therefore reconsider the approach in the context of this phenomenon.

### 3.5 ECONOMETRIC AND HOUSEHOLD FLOW METHODS

In a review of the literature, Pitkin and Masnick identify three distinct themes - not necessarily mutually exclusive - with which commentators have sought to explain household trends:<sup>49</sup>

- the preferences hypothesis : the taste for privacy has grown;
- the family structure hypothesis : demographic shifts favour independent living;
- the economic hypothesis : household size (and hence the number of households) is related to the costs of living as an independent unit relative to the costs of living as part of a larger household.

#### Econometric Analysis

Implicit in the DoE's household projections is the assumption that the factors determining the past trend in headship rates will evolve in accordance with the projected trend. However this in itself is no reason for rejecting the headship rate method as a means of making household projections. Rather, it implies a need to consider alternative approaches to projecting the rates themselves.

Econometric models may be used to relate headship rates to demographic, social, and economic variables, and the DoE has recently embarked on a programme to build such a model.<sup>50</sup> The model will be built using cross-sectional data, with the probability of an individual heading a household the dependent variable, and data for those variables relating to individual circumstances (including whether "head" or "non-head") provided by the General Household Survey. Using the cross-sectional approach avoids the need to rely on time series data which may be of variable quality and suggest relationships which are no longer valid. The approach allows for more observations, these being equal in number to the individuals in the sample. However difficulties arise in the incorporation of lagged variables, since only those that are general rather than individual-specific can be included.

The main benefits are expected to be in explaining differences in headship rates and hence why changes in headship rates occur.

The uncertainties associated with the forecasting of independent variables mean that the model will be used principally in making short term projections and undertaking sensitivity testing : it is seen as a supplement to the extrapolation method rather than a replacement.

Econometric approaches are not new, but they have not been used widely in local authority forecasting. A model expressing average household size as a function of twelve explanatory variables was built in the 1960's by Hampshire County Council and was used in forward planning in the south of the county. The variables comprised six demographic variables - for example the proportion of the population aged over 60 - and six socio-economic variables : four age/sex-specific economic activity rates, and ratios expressing persons in socio-economic groups "A" and "B" as proportions of the total population. The model was calibrated using 1966 census data, the resulting regression equation explaining 80% of the observed variation in average household size.<sup>51</sup> Parallel models expressing proportions of households of different size as a function of the same variables were also built.

The number of independent variables was twice reduced in the 1970's, firstly to improve the model's explanatory power with regard to variations in average household size as observed at the 1971 census, and secondly to reduce the scope for inter-correlation.<sup>52</sup> Initially, the main reasons for rejecting the extrapolation method had been those discussed above as well as the limitations inherent in relying solely on data from the 1961 and 1966 censuses. However various weaknesses were identified in the approach used, and theoretical confusion persisted in the way in which economic and demographic variables were combined in the equations. As a result the approach was subsequently abandoned.<sup>53</sup>

Various studies have established a relationship between specific headship rates and economic factors in the latter half of the 20th Century.<sup>54</sup> Of particular interest is the international analysis of change over the 1960-1980 period, undertaken by Smith, Rosen,

Markandya and Ullmo.<sup>55</sup> Headship rates, specified by two age-groups in Great Britain (retired and non-retired) and four age-groups in Canada, France, and the United States, were regressed against a number of variables : real income, real housing costs, the availability of public housing, and a combined socio-economic variable.

Real income was shown to be highly significant in explaining the increase in headship rates in all but two cases - the retired of France and the United States. House price was highly significant amongst most age-groups internationally. However in Britain it was found to be insignificant in explaining the increase amongst the non-retired, while the sign of the variable was incorrect for those over retirement age. The availability of public housing was significant for retired headship rates in three countries, including Britain. The socio-economic variable which was based on divorces and economic activity was omitted due to a high correlation with income.

Two further features require comment. Firstly, where a detailed breakdown by age was possible, income elasticity was shown to vary inversely with the age of household head. This confirms the importance of specifying headship rates by age. It means that while such specification tends to give projections a demographic character, it is also desirable where the influence of a range of factors is accepted. Secondly, although the regression analysis was carried out for headship rates by age only, trends in rates by household type were also discussed. It was confirmed that most of the variation in crude headship rates over the 1960-1980 period could be attributed to a dramatic growth in non-family households.

#### The Minimal Household Unit Concept

This latter observation inevitably leads us back to the issue of household definition. In particular, the catch-all census category of "other" households may be considered inadequate since it ignores the characteristics of non-head household members and the relationships between them. In recognition of this Ermisch and Overton have developed the concept of the Minimal Household Unit (MHU) as a building block in an alternative analytical framework.

The intention here is to define the smallest divisible elements which can be regarded as economic decision-making units.<sup>56</sup> Four categories of MHU are identified : adult individuals, lone parent families, childless married couples (including persons in de facto marriages), and married couples with dependent (non-adult) children. The aim is to separate out the demographic determinants of MHU formation from the socio-economic factors determining the distribution of MHU's between households. Three aspects are identified in relation to this distribution. Firstly, it is assumed that MHU's have a preference for privacy. Secondly, there is a trade-off between the desirability of living as a separate entity and the benefits accruing from other householders contributing to domestic chores. Similarly, up to a point there are economies of scale in the costs of household and housing services.<sup>57</sup>

The distribution is therefore analysed in terms of "loneship rates", expressing the probability of an MHU living as a separate household and not sharing a dwelling. Regressing loneship rates against a range of variables, Ermisch and Overton concluded that earnings capacity and income do matter a great deal, and variations in household size cannot be explained without them.<sup>58</sup>

Conceptually, the MHU framework is much more attractive than the headship rate framework. However one of the shortcomings relates to the availability of data at different spatial scales. Since census questions regarding family and household questions are classified as "hard-to-code", the information concerning the characteristics of individuals is stored separately and much that is required is not available. Analysis has therefore relied upon data from the General Household Survey from which it is possible to reconstruct MHU's, although analysts accept that this is not a trivial task.<sup>59</sup>

The two-stage approach raises a number of problems besides those connected with the availability of data however. Firstly, while family structure may be regarded as more definite than household structure, there remains the task of accurately forecasting the demographic determinants of the former. Secondly, there remains the

ever-present difficulty in forecasting the socio-economic factors determining future "loneship rates". Thirdly, as Ermisch himself demonstrates, housing market factors may influence marriage decisions.<sup>60</sup> This raises questions regarding the assumption that MHU's are exclusively demographically determined. Conversely, the distribution of MHU's may be influenced by demographic factors. We would intuitively expect loneship rates to vary with the number of children present, and we saw in Chapter Two that fertility rates are difficult to predict accurately. Of course this is itself due to the fact that socio-economic factors themselves impact upon child-bearing decisions.

The MHU framework has only been used to a very limited extent in local planning authority projections. Some work was initiated in Hampshire in the mid-1980's, but a lack of resources led to the adoption of a more pragmatic approach : adjustments were made to headship rates to "damp down" projected increases in areas of high house prices.<sup>61</sup>

#### Household Flow Analysis

Headship rate methods are essentially static in character : they do not address the dynamics of household formation and dissolution. The emphasis on stocks rather than flows of households leads inevitably to an emphasis on the net change in households when considering future housing requirements.

Until the mid-1980's the view at the DoE was that dynamic models of household projection were unsatisfactory, given the limited knowledge of the complex pattern of factors motivating formation and dissolution.<sup>62</sup> More recently there has been an upsurge of interest in these models within the international academic community, although the inter-relationship between social, economic and demographic influences remain unclear.<sup>63</sup>

The extrapolation approach to headship rate projection contains an inherent theoretical weakness. We would expect that:

$$HSR_{ia1t1} = f (HSR_{ia0t0})$$

However in extrapolation the assumption is made that:

$$HSR_{ialt1} = f (HSR_{ialt0})$$

- where HSR = headship rate

i = household type

a0,a1 denote two consecutive age-groups

t0,t1 denote two consecutive points in time,  
of interval equal in length to the age-groups

If headship rates for adjacent age-groups are radically different then a cohort analysis of projected rates will reveal an abrupt change. The DoE is currently pursuing approaches involving the application of transition rates to observed headship rates, expressing the probabilities of a head or "non-head" remaining as such or moving to a different headship category.<sup>64</sup> Econometric approaches have similar weaknesses, although given the availability of data they may be ameliorated by the incorporation of lagged explanatory variables.

Internationally, various attempts have been made to combine economic and demographic variables in household flow models.<sup>65</sup> At home Holmans' approach to forecasting housing demand in the 1970's can be regarded as a starting point.<sup>66</sup> In this approach the number of new households forming was forecast as the number of marriages between bachelors and spinsters, derived with reference to the Government Actuary's Department marital status projections, plus immigrant households. The number of dissolved households was forecast as those dissolved by the death of householders, an estimate of elderly householders choosing not to live alone, plus emigrant households.

Tenure was then considered. It was assumed that money incomes would rise faster than house prices, and that the proportion of new households entering the owner-occupied sector would rise accordingly. Further attempts were made to predict the movement of households between the tenures and demand by households staying within the same sector. It was acknowledged that forecasting these flows is a complex exercise and estimates were based on limited evidence.<sup>67</sup> Thus the flow from council to owner-occupied accommodation was essentially assumed to be dependent on relative prices and incomes: assuming no change in relative prices and rising incomes, this flow was expected to increase gradually.

Holmans' model was later modified at the DoE to allow for a more sensitive treatment of the different types of households forming and dissolving.<sup>68</sup> More recently PEIDA has applied a household flow model in assessing demand in Scotland. Here, the gross increase in households was disaggregated by broad socio-economic group (SEG), in accordance with the observed distribution.<sup>69</sup> SEG-specific owner-occupation rates for households were computed from observed data and the assumption made that these would rise. The rates were then applied to the gross increase to provide a forecast of demand for private housing from new households, and a tenure shift element was incorporated.

The household flow method has the particular advantage - in principle at least - of enabling the resources, tenure preferences and dwelling-specific preferences of existing households and persons forming new households to be acknowledged explicitly. Assessments of housing requirements based on static household projections derived from extrapolated headship rates effectively "sieve out" price and demand function factors such as income.

Nevertheless we must in conclusion acknowledge that Holmans' household flow model is not considered as an alternative to the headship rate based projections. The net change in household numbers is seen as an indispensable total to which the various flows can be controlled.<sup>70</sup> The development and application of the cohort approach to headship rate projection should do much to improve the quality and credibility of efforts of this type.

### 3.6 DWELLING STOCK ESTIMATION

An assessment of housing requirements over a plan period may involve comparing a household projection either with the existing number of households or the existing number of dwellings. The latter approach - calculating the "stock/households" balance - is emphasised throughout the literature, and is the method used in the Chelmer Population and Housing Model. This is not to say that the former approach, which we may refer to as the "household change" method, is invalid : it is simply that this approach is not generally acknowledged as an option in much of the literature.<sup>71</sup>

Estimating the existing number of dwellings is not the simple task which we might initially anticipate. As with other aspects of forecasting, the census provides a starting point. However an immediate problem arises since the 1981 census did not contain a count of dwellings as such. Instead a count of "household spaces" was made, with a distinction made between those in permanent buildings and those in non-permanent accommodation. Amongst household spaces in the former category, a further distinction was made between those "in self-contained accommodation" and those "in not self-contained accommodation".

The motivation behind this approach to recording accommodation stems from difficulties experienced in previous censuses. In 1961 and 1966 dwelling counts were made using a structural conception of a dwelling - "a building or part of a building which provides structurally separate living quarters".<sup>72</sup> However in the 1971 census a more detailed definition was adopted, enabling greater sensitivity in the treatment of different living arrangements. Three categories of dwelling were identified :

- the household space of a household not sharing any of its household or access space with any other;
- the household space of a household sharing access space for the purpose of access only;
- the total number of household spaces of households sharing rooms and/or access space for internal circulation.

Thus the first two categories provided a count of unshared dwellings, the third a count of shared dwellings. This approach was not without its difficulties. For example, bed-sits were recorded as separate dwellings even if their occupants shared toilet facilities. Conversely, the DoE considered that some of the dwellings recorded as "shared" could be regarded as comprising "reasonably separate dwellings". In using the data, the DoE made adjustments to the counts accordingly.<sup>73</sup> It was as a result of these problems, and the view that enumerators had considerable difficulties in interpreting instructions, that OPCS took the decision not to undertake a dwelling count in 1981.

A method for converting 1981 household spaces into numbers of structural dwellings was devised by Roberts. Thus to reiterate:

"A dwelling is defined as a building or any part of a building that forms a separate and self-contained set of premises designed to be occupied by a single family or household. The term household space is used to describe the accommodation occupied by a household for living purposes, or vacant accommodation intended for occupation by one household."<sup>74</sup>

Roberts' method involves computing and applying the 1971 ratio of dwellings comprising "household spaces in not self-contained accommodation" to the number of such household spaces themselves. Hence:

$$D_{81} = HSPSCA_{81} + p \cdot HSPNSCA_{81}$$

$$\text{in which } p = \frac{D_{71} - HSPSCA_{71}}{HSPNSCA_{71}}$$

- where D = dwellings

HSPSCA = household spaces in self-contained accommodation

HSPNSCA = household spaces in not self-contained accommodation

71, 81 denote years 1971, 1981

There are two immediate drawbacks with this method. Firstly, the use of 1971 census data in computing values for the ratio  $p$  inevitably re-introduces the errors and uncertainties which led in the first place to a dwelling count not being undertaken in 1981. Secondly, values of  $p$  are assumed not to change over time. Commentators have suggested that this assumption is dubious, given changing trends in household formation, tenure shifts, and substantial changes in the private rented sector wherein most sharing occurs.<sup>75</sup> In addition we would expect the change in household definition in 1981 to have reduced numbers of households (and hence household spaces) in shared dwellings. In view of this it may be argued that the  $p$  ratios are too small, and that their application would lead to an underestimate of the number of existing dwellings.

Other difficulties have emerged. For example the DoE subsequently estimated that 50% of vacant new and never-occupied accommodation had been incorrectly enumerated and were not in fact ready for occupancy on census night.<sup>76</sup> Furthermore the OPCS Post Enumeration Survey indicated a high probability of households in "not self-contained accommodation" being recorded as living in separate accommodation.<sup>77</sup> That is to say : there were more households sharing dwellings than had originally been thought. This would mean that applying Roberts' formula to the census enumerated household spaces would lead to an overestimate in the number of dwellings.

Having made these points we must acknowledge that Roberts sought to make various adjustments to allow for inconsistencies between the two censuses,<sup>78</sup> and the DoE has more recently attempted to improve methods of calculation.<sup>79</sup> Nevertheless by nature all of these approaches yield approximations only. Moreover, while Roberts computed separate p ratios for each of the counties, statistics subsequently published have made the simplifying assumptions that 100 household spaces in "not self-contained accommodation" equate with 20 dwellings in certain parts of London, and 30 dwellings elsewhere.<sup>80</sup>

Of course the importance to be attached to the lack of precision with which dwelling estimates can be made will vary according to the nature of the stock in different areas. It will be less important in shire counties with a lower proportion of "sharing" households than in metropolitan areas. In addition, in our context there is a case for arguing that the uncertainties associated with long-term forecasting make issues of this kind almost irrelevant. On the other hand this is no reason for not minimising uncertainties wherever possible. It is now generally acknowledged that census dwelling counts are desirable, and in 1991 a count will be made, with households being requested to answer specific questions relating to the degree of self-containment.<sup>81</sup>

Unless the base date of a plan period coincides with that of the census it will be necessary to update the dwelling estimate to account for interim gains and losses due to completions, conversions, and

demolitions. The DoE publishes quarterly statistics, based on local housing authority returns and reports from the National House-Building Council, in Local Housing Statistics. The data is presented cumulatively for each calendar year, with revised figures published as late returns are received.<sup>82</sup> However while a recent survey indicates that the majority of county planning authorities rely on this source, most have serious doubts about its reliability and comprehensiveness.<sup>83</sup>

Alternative sources include local housing authority Housing Improvement Programme submissions to the DoE, which indicate the number of dwellings as at 1st April of each year. However again there may be gaps in the information contained,<sup>84</sup> and reliability and comparability is likely to vary with the type of monitoring system used in each district. The rating valuation list held at the Inland Revenue District Valuer's Office provides another source of information, but is subject to various weaknesses. For example, there may be a time lag between building or demolition activity and the office being notified. Furthermore some rating units (hereditaments) may contain more than one dwelling, while in certain circumstances dwellings may not be treated as residential properties.<sup>85</sup> More reliable information may, in the future, be available from the community charge register, although this again will undoubtedly raise issues in determining between "households" and "dwellings".

Of course planning authorities' own records may be used in updating estimates, but if the information is collected by the districts (as development control authorities) rather than the counties, issues of comparability will again arise. A particular problem, common to all sources, is in gaining information regarding conversions, since there may be no obligation to inform a housing or planning authority of any change. Moreover even if authorities are notified, detailed information on the net change in numbers of dwelling units may still be unavailable. Another problem, which we saw raised in connection with the census, will relate to the determination of when a new dwelling is defined as being completed. Conversely, a dwelling may have fallen into semi-derelict condition and be awaiting demolition. In summary then, a considerable level of uncertainty surrounds estimates of the size of the dwelling stock.

### 3.7 FORECASTING LOSSES TO THE DWELLING STOCK

Various adjustments must be made to allow for those dwellings which will not make a direct contribution to meeting the housing requirements of a future resident population. In summary, these adjustments relate to second homes and holiday lets, "replacement dwellings", and new and existing dwellings which for various reasons may be "vacant" at the end of a plan period. In this section we shall concentrate on issues arising in connection with the first two adjustments.

The census classification of household spaces by occupancy type provides the main source of information regarding second homes, holiday lets, and vacant dwellings, distinguishing between:

- (a) households enumerated with usual resident(s);
- (b) absent households;
- (c) households enumerated with no usual resident(s) : owner occupied;
- (d) households enumerated with no usual resident(s) : not owner occupied;
- (e) unoccupied on census night : second residence;
- (f) unoccupied on census night : holiday accommodation;
- (g) vacant : new, never-occupied;
- (h) vacant : under improvement;
- (i) vacant : other.

The interpretation of this data requires caution however. Firstly, the distinctions between the categories are not clear-cut. Thus in the census commentary OPCS stated that:

"Second residences were defined as 'premises such as company flats, holiday houses, weekend cottages, in permanent buildings known to be the second residences of people who have a more permanent address elsewhere : this classification applies even if the premises are occasionally let to others' while holiday accommodation was defined as 'accommodation in permanent buildings let to different occupiers for holidays, for example self catering holiday flats'."86

The census therefore sought to distinguish these types of accommodation from vacant household spaces and "absent household" spaces, the latter referring to the usual (first) residence of a temporarily absent household. In practice this presented difficulties since in the absence of any occupant enumerators had to rely on visual assessments and information supplied by neighbours.

Furthermore, on initial perusal the categories may give a misleading impression, since second residences and holiday lets were only classified as such if they were unoccupied on census night. OPCS advice is that "households enumerated with no usual resident(s) : owner occupied" may be taken as an approximation for second residences occupied on census night, and "households enumerated with no usual resident(s) : not owner occupied" may be taken as an approximation for occupied holiday accommodation.<sup>87</sup> This means that a comprehensive estimate of second homes and holiday lets would include the four categories referred to above as (a), (b), (c) and (d).

We have already discussed the problems involved in estimating the total number of dwellings from a count of household spaces. These problems also apply here. However we shall refer simply to "dwellings" in order to facilitate our investigation of the important issues which arise specifically in regard to second homes, holiday lets and vacancies.

An authority may, in assessing housing requirements, deduct an estimate of dwellings in categories (c), (d), (e) and (f) from an estimate of the total number of dwellings. Implicit in this adjustment is the assumption that the number of second homes and holiday lets will remain constant over a plan period. This introduces a source of uncertainty, although the capacity for developing a more sensitive approach is hampered by a paucity of data from which to analyse causal factors or build a time series for extrapolation. Underestimating second homes and holiday lets would, of course, lead to an under-provision for accommodation for the future resident population, *ceteris paribus*.

The need to make an allowance for these types of accommodation highlights one of the weaknesses in the demographic approach, namely that each household is associated with only one dwelling. Nationally, second homes and holiday lets accounted for less than 1% of the total stock in 1981, although there exist considerable differences between areas. Holiday lets tend to be prevalent in remote areas in attractive countryside environments, while second homes may be sought in urban areas where the motivation is accessibility and convenience (- although the determination of usual and second residence may itself be difficult). Not surprisingly, given the lack of data, commentators have emphasised the use of surveys and the application of subjective local knowledge.<sup>88</sup>

Another issue relates to the population base used in forecasting. OPCS mid-year estimates (MYE's) assume that students reside at their term-time address. However the census classification of dwellings applies the census usually resident population base, with instructions given to enumerators to treat students' accommodation as second homes. This means that comparing a household projection made using the MYE definition with an estimate of dwellings which excludes second homes would result (*ceteris paribus*) in an over-assessment of housing requirements.

Having made this point we have to acknowledge an additional uncertainty. It is widely thought that some student accommodation was in fact classified as "absent household" spaces rather than as second homes.<sup>89</sup> In view of the problems faced by enumerators in this respect an additional category of "student accommodation" is proposed in the 1991 census.<sup>90</sup> Finally, the reader should be aware that halls of residence are classified as non-private rather than private accommodation and therefore do not figure in the household space counts at all. A failure to incorporate such residences in the dwelling stock estimate would again lead to an over-assessment of housing requirements (*ceteris paribus*).

The census includes all household spaces associated with private households, with the exception of those in buildings which are clearly

derelict. However some of the existing dwellings may be demolished over a plan period while it may be argued that others are of inadequate standard. This means that an allowance has to be made for "replacement dwellings". Making such allowances is highly problematical however, for the simple reason that a normative assumption must be made regarding the level at which a minimum standard of adequacy is fixed.<sup>91</sup>

In Section 604 of the 1985 Housing Act an "unfit dwelling" was defined as a dwelling "not reasonably suitable for occupation" by reason of its being defective on one or more of the following criteria : repair, stability, freedom from damp, internal arrangement, natural lighting, ventilation, water supply, drainage and sanitary conveniences, facilities for the preparation and cooking of food and the disposal of waste water.

A dwelling not falling within the statutory definition of unfitness in the 1985 Act could nevertheless be classified as substandard by reason of its "lacking in basic amenities", as defined in the standard DoE guidance for carrying out a House Condition Survey. These basic amenities comprise : a fixed bath or shower in bathroom, a wash-hand basin, a sink, hot and cold water at each of the above, and a W.C.<sup>92</sup>

The 1985 definition of unfitness which had been incorporated in previous acts of 1957 and 1969, has since been revised in Schedule 9 of the 1989 Housing and Local Government Act.<sup>93</sup> Defects in artificial as well as natural lighting can now be considered, there is a new requirement for adequate provision of heating, and extended requirements with regard to water supply and personal washing facilities, commensurate with the "basic amenities" standard.

Housing Investment Programme (HIP) submissions to the DoE indicate local housing authority assessments of numbers of dwellings falling below each standard by tenure, and also indicate numbers in need of renovation and requiring capital expenditure in excess of a set figure. The census on the other hand is more limited in its usefulness because it is primarily concerned with the characteristics

of the population : it only provides a count of household spaces by amenities, the categorisation of which differs from the standard definitions.

Local housing authorities have a statutory duty to take action with regard to unfit dwellings. This may involve renovation and rehabilitation, or demolition and rebuilding (by the authority itself or by other agencies). Although the scale of clearance and redevelopment activity has been much reduced since the 1960's, the Secretary of State has recently proposed that housing authorities should carry out Neighbourhood Renewal Assessments in which to consider the relative merits of different area improvement strategies.<sup>94</sup> The recommended procedure for option evaluation involves an economic and a socio-environmental assessment. The economic assessment will consider private as well as public sector costs and will be undertaken to an initial time horizon of 30 years;<sup>95</sup> the socio-environmental assessment will assess each option against a range of criteria to be determined by the local authority.<sup>96</sup>

It cannot therefore be assumed that all unfit dwellings will require replacement : some may be capable of being improved. On the other hand if a course of action involving clearance is proposed, then some dwellings not defined as unfit may nevertheless be demolished. Furthermore, the argument that such issues are irrelevant in terms of housing land requirements is fallacious, since new dwellings may be built at different densities than those demolished.

The development of systematic strategic assessments of this kind is important in the context of Structure Plan policy formulation. Estimates of the number of unfit dwellings say little about the condition of the stock as a whole, and the extent to which presently fit dwellings may become unfit over the plan period. It is possible to assume an arbitrary "life" of a dwelling and attempt to forecast its year of "expiry",<sup>97</sup> but such approaches are fraught with difficulties. Dwellings are not homogeneous and they will incorporate different materials and construction techniques and may have been subject to different levels of maintenance. A dwelling "life" may also vary according to type and tenure.

In addition the "life" of a dwelling may vary according to its year of construction<sup>98</sup> : we may conceive of a "cohort" approach to forecasting losses on the basis that dwellings built in different years may experience different rates of deterioration. Even if an adequate theoretical basis for a stock-ageing model were developed, age data is itself limited and a comprehensive survey approach would be required in operationalising such a model.

Much of the literature on this subject emphasises rehabilitation and renewal decisions from the perspective of property owners, be they in the public<sup>99</sup> or private<sup>100</sup> sectors. Little attention is given to the preferences which future households may have for living in new dwellings. The application of statutory definitions or an assumed dwelling "life" do not explicitly address social perceptions of obsolescence amongst the existing stock.

"As the housing situation ... improves, new, unforeseen and less easily detectable housing requirements gain in importance. Such a change is essentially a phenomenon of the transition from the 'quantitative phase' to the 'qualitative phase' of the housing process. This transition leads to a more intensive interaction between normative methods and demand analyses."<sup>101</sup>

The view that the solution lies in introducing progressively higher standards of minimum adequacy presents severe difficulties however. The lower the standard, the greater the opportunity for consensus in identifying precisely what elements are required in a "satisfactory" dwelling. While it is possible to assert that popular perceptions of a minimum standard have risen, the housing services now perceived as "necessary" by different consumers will reflect the circumstances and aspirations of different individuals and groups, which as such are not directly comparable.

Nevertheless house-builders have commented that local planning authority forecasts of housing requirements fail to make sufficient provision for the demand for owner-occupied dwellings. One approach to quantifying tenure split would involve applying proportions to the

total number of households forecast for the end of a plan period. The tenure-specific household projections could then be compared with tenure-specific estimates of existing dwellings (taken from HIP submissions). Such an exercise might reveal that the existing number of (say) public sector dwellings was in excess of the number required to accommodate the households forecast in this tenure. In this case the surplus public sector dwellings would be treated as an additional component of "losses" to the dwelling stock,<sup>102</sup> on the assumption that these would not contribute to housing the future population. This would have the effect of ensuring that sufficient provision was made to satisfy the forecast requirement for owner-occupied dwellings.

Two points should be made regarding this approach. Firstly, incorporating tenure assumptions in this way requires a static view of household development and distribution, emphasising the "out-turn" situation rather than the dynamic processes on which this depends. The approach is crude in comparison with the household flow methods discussed earlier. Secondly it should be noted that "right to buy" and similar legislation may mean that discounting public sector dwellings in this way may not be appropriate: dwellings may themselves be transferred between different tenures.

In theory this approach could be extended in various ways. Household projections disaggregated by age of head reveal numbers of elderly households, while projections by type may give an indication of the size of dwellings required. Commentators have acknowledged that little is known of how households actually perceive dwelling characteristics,<sup>103</sup> although applying life-cycle theory it may be possible to postulate a relationship between different types of household and their housing preferences.<sup>104</sup> It may be argued that a detailed balance sheet approach, involving a comparison between numbers of households and dwellings disaggregated by type, would be a useful aid in assessing existing qualitative housing needs and preferences.<sup>105</sup> However the usefulness of such an approach in forecasting is doubtful, due to the inherent uncertainties involved and the increased complexity which it would introduce.

### 3.8 FORECASTING VACANCY RATES

At any given time a number of dwellings may be vacant for reasons other than the temporary absence of a "usually resident" household. Assessments of housing requirements therefore include a "vacancy allowance", generally derived by applying a vacancy rate expressing as a proportion the number of dwellings assumed vacant.

Setting aside the issue of households sharing a dwelling, we may express the relationship between dwellings and households in the base year of a plan period as follows:

$$(D_{t0} - HOL_{t0}) (1 - VR_{t0}) = H_{t0}$$

- where D = dwellings

HOL = holiday lets and second homes

VR = vacancy rate (vacant first homes:total first homes)

H = households in first homes

t0 = denotes base year of plan period

A forecast of dwelling requirements over a plan period may therefore be made as follows:

$$DR_{t0-t1} = H_{t1} (1 - VR_{t1})^{-1} + HOL_{t0} - D_{t0} + DL_{t0-t1}$$

-where DR = dwelling requirement

DL = dwelling losses (including increases in holiday lets and second homes)

t1 denotes end year of plan period

Alternatively:

$$DR_{t0-t1} = H_{t1} (1 - VR_{t1})^{-1} - H_{t0} (1 - VR_{t0})^{-1} + DL_{t0-t1}$$

Or, if we also assume that the vacancy rate will remain unchanged:

$$DR_{t0-t1} = (H_{t1} - H_{t0})(1 - VR_{t0})^{-1} + DL_{t0-t1}$$

There exist a plethora of alternative configurations by which the components may be combined.<sup>106</sup> For example, it may be proposed that the number of second homes and holiday lets is related to the number of first homes, in which case:

$$DR_{t0-t1} = (H_{t1} - H_{t0})(1 - VR_{t0})^{-1} (1 - HOLR_{t0})^{-1} + DLX_{t0-t1}$$

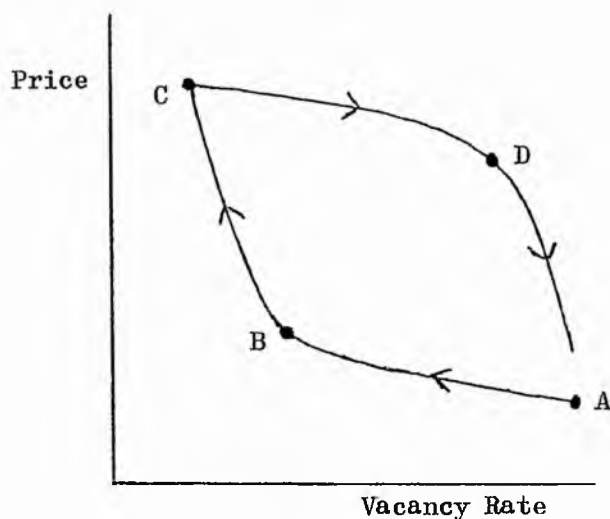
- where HOLR = ratio of holiday lets and second homes to  
all homes

DLX = dwelling losses (excluding changes in  
holiday lets and second homes)

There is no a priori reason to expect that the number of holiday lets and second homes in an area should increase in this way, but the difficulties in forecasting this component may lead to the adoption of such an approach, and we state this equation simply to emphasise that there is no "best" method for calculating housing requirements.

In examining approaches to vacancy rate forecasting we have to consider reasons for the existence of vacant dwellings. Rietveld uses a stock-flow framework of the housing market to illustrate their generation.<sup>107</sup> Thus out-migration and household termination contribute to the flow of dwellings from "occupied" to "vacant" while in-migration and household formation contribute to the flow in the opposite direction. In a similar analysis Merrett and Smith incorporate the activities of improvement and conversion as additional factors leading to vacancies, referring to these and the socio-economic processes underpinning them as the "pumping heart of household mobility".<sup>108</sup>

An allowance for "frictional" vacancies (those directly associated with household mobility) and improvement/conversion vacancies is therefore necessary to enable the housing market to function. However since the number of vacancies at any point in time represents the outcome of a dynamic process, any static approach to forecasting contains an inherent weakness. It may indeed be postulated that changes in vacancy rates indicate changes in demand,<sup>109</sup> and it is appropriate for us to debate this point here. We may consider the relationship between vacancy rates and house price as hypothesised by Blank and Winnick, and developed by Needleman.<sup>110</sup>



Thus in a period of rising demand the initial market response may be a fall in the vacancy rate as demand is satisfied by a more intensive use of the existing stock (A→B). As the slack is taken up and prices start to rise (B→C), builders initiate new construction activity. As the new dwellings are placed on the market the initial response is a rise in the vacancy rate (C→D), and as quantity supplied increases competition amongst sellers occurs and prices fall.

It may therefore be hypothesised that a fall in the vacancy rate is indicative of rising demand. One reason why this may not be the case is that increasing demand for dwellings of a particular type (or tenure) may co-exist with high numbers of vacancies in other sectors. Moreover, the high levels of mobility and improvement/conversion work associated with a very active market may themselves contribute to increases in the number of vacant dwellings. On the other hand a very active market may result in a more rapid completion of improvements, so that owners can take advantage of existing market conditions. If, in a given period, a set number of dwellings "flow" from "occupied" to "vacant" and back to "occupied", then, *ceteris paribus*, the lower the length of time dwellings are vacant, the lower the vacancy rate at any specific point in time.

Interdependence between vacancy rates and local authority policies may take a variety of forms. Planning blight associated with

uncertainties connected with a proposed redevelopment scheme could be expected to lead to an increase in the vacancy rate. Poor management of local authority or housing association stock, or a lack of resources with which to undertake improvements, could also lead to a higher vacancy rate. On the other hand limiting new development might, *ceterus paribus*, have the effect of reducing the vacancy rate.

It may be suggested that separate rates should be applied to account for tenure differences and the degree to which local authorities may exert direct influence over the occupancy of public sector dwellings. Successive governments have sought to develop initiatives to reduce vacancy rates in this sector.<sup>111</sup> Research commissioned by the DoE suggested a target rate for the public sector of 1.25%, comprising 0.5% available for letting and 0.75% awaiting repair or demolition, with an extra allowance for conversions based on local policy.<sup>112</sup> Similarly, the DoE suggested in 1977 that the public sector rate should be no higher than 2% unless difficult-to-let units were involved.<sup>113</sup>

The OPCS Vacant Property Survey of 1977 confirmed that a disproportionate number of vacancies were to be found amongst older dwellings.<sup>114</sup> It also showed that almost two-thirds of vacancies were related to dwelling condition, of which almost a quarter were vacant pending demolition (although considerable variations were evident when the sample was disaggregated by age and tenure).<sup>115</sup> This raises a further problem in terms of the consistency between the vacancy rates assumed in forecasting and the forecasts of "losses" to the stock discussed earlier. Depending on the way in which vacancy rates are computed a degree of double-counting may occur in the assessment of "replacement dwellings" required.

Planning authorities generally adopt one of two approaches to forecasting vacancy rates, applying either a target rate or a rate assumed constant at an observed value.<sup>116</sup> Target rates may reflect realisable policy assumptions - regarding local housing authority stock management procedures as discussed above for example. They may also incorporate attempts to identify a hypothetical vacancy reserve

in the private sector, allowing only for vacancies arising directly from household mobility and improvement and conversion. This may be seen as a strict "need" approach to forecasting.<sup>117</sup>

However seeking to distinguish between the factors responsible for vacant dwellings is problematical, given the quality of the data available from official sources. The census applies a three-way classification to distinguishing between vacancy types amongst first residences: new/never-occupied, under improvement, and "other". Yet the majority of vacant household spaces generally fall within the "other" category,<sup>118</sup> which includes frictional vacancies and accommodation unoccupied for indeterminate reasons, thus making further analysis difficult.

Rating records provide an alternative source of information, but Smith and Merrett note that there may be no record of a property becoming vacant unless it is reported or identified as such, and the legal interpretation of "vacancy" is quite stringent.<sup>119</sup> The community charge register may prove more useful, since owners of vacant dwellings are required to provide information regarding their condition and the date at which former occupants moved out.

Housing Investment Programme submissions also enable estimates of vacancy rates to be made in inter-censal years. Moreover, because vacancies and numbers of dwellings are estimated by tenure, tenure-specific rates can be calculated. The main limitations of using this source have already been addressed : the quality of the data relies on the availability of resources and the adequacy of the monitoring system used by the housing authority in question.

In conclusion we have to acknowledge Moreton and Tate's view, expressed in 1975, that vacancy rate forecasts are inevitably arbitrary,<sup>120</sup> and King's observation in 1987 of "a very distinct lack of progress".<sup>121</sup> In part we may attribute this to the quality of the data. More significantly we must acknowledge the inherent difficulties in forecasting vacancy rates, which are fundamentally a product of market forces and policy intervention of various kinds.

### 3.9 CONCLUSIONS

In the first part of this chapter we considered methods of household projection. Headship rate methods were examined and particular attention was given to the development of extrapolation techniques used by the DoE. The normative basis of the potential households formula as an aid to assessing housing need was evaluated. The inadequacies of the formula as a means for assessing the preferences of households to occupy separate dwellings were discussed, and the conceptual inelegance involved in applying such mechanisms in forecasting highlighted.

Although the DoE does not presently make any recommendation that the potential households formula be applied by local authorities,<sup>122</sup> we shall see in the case-studies that approaches of this kind continue to be used. Indeed, the DoE does not now provide any specific guidance regarding methods for assessing housing requirements, although its projections of headship rates may be regarded as part of the "language" in which debate is conducted. Clearly we shall have the opportunity to reconsider this proposition in the case-studies.

We noted recent household trends and made the point that past projections have failed to allow for increasing numbers, particularly amongst single person and other non-family households. Despite increasing sophistication in methods, the DoE's headship rate projections remain a "black box" in the sense that they do not have regard to the determinants of change. This is not necessarily a reason for abandoning headship rate methods however, and alternative approaches based on econometric analysis are being developed.

Nevertheless despite the formulation of hypotheses with which to explain past trends, their determinants are not well understood. Moreover, in applying econometric approaches in forecasting there remains the task of undertaking exogenous forecasts of the independent variables. Econometric approaches also involve the assumption that the factors explaining past trends will be linked in the same way in the future. On occasion they have been used in planning practice to

forecast average household size (the inverse of the crude headship rate), although empirical evidence points to the desirability of disaggregation.

We also made reference to dynamic and household flow methods. Such methods are more amenable to demand analysis since they acknowledge that housing and household change is a dynamic process, although they too require a greater number of forecast assumptions to be made.

The DoE's present method of household projection is "robust" in the sense that it enables comparable projections to be made quickly for a large number of areas. The principal data source - the census - provides by far the most adequate sample from which to undertake household analysis, and extracting the data required in the computation of headship rates is relatively straightforward. The limitations imposed by the infrequency of the census are offset to a degree by the incorporation of additional data from the Labour Force Survey.

Relying on the census reduces the capacity for analysing relationships within non-family households however. While there may have been grounds for considering that such households were of marginal importance in the immediate post-war years and the 1960's, the subsequent increase in their number means that this is no longer the case. From this perspective the DoE's headship rate framework may be regarded as inadequate, and a new conceptual framework based on "Minimal Household Units" has been devised.

The Minimal Household Unit approach is attractive but it poses difficulties both in relation to data availability and in the determination of likely future sharing patterns. Since non-family households are likely to be prone to greater instability than traditional family arrangements, the growth in their number represents an increasing source of uncertainty in forecasting. In making this point we must also acknowledge that rising divorce rates mean that family households are themselves becoming increasingly

unstable, and forecasting marital status transition rates is a difficult task involving much subjective judgment. Furthermore it is important to recognise that "demographic" phenomena such as marriage, divorce, and fertility do not occur in a vacuum and are influenced by economic conditions.

In the second part of the chapter we considered the additional inputs required in an assessment of housing requirements. The problems encountered in estimating the size of the existing dwelling stock were discussed. Approaches to forecasting losses to the stock were examined, the problematical area of vacancy rate forecasting debated, and issues of consistency addressed.

Such considerations may be regarded as "pedestrian" by comparison with those associated with household projection,<sup>123</sup> but they are important for two reasons. Firstly, there is the rather obvious point that assumptions made in relation to these components will impact upon the scale of provision made for future house-building in plan policies. Secondly, it is here that fundamental choices regarding the housing in which a future population is expected to live have to be addressed. It is here that the dichotomy between planning for "need" and planning for "demand" is perhaps at its most acute, and it is here that forecasting approaches are least well developed.

In considering the reasons for dwellings being vacant we discussed the view that vacancy rates could be used to indicate changes in demand, but made the point that they would be influenced by much else. We shall devote the next chapter to a study of other possible demand indicators.

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$$ADL_{t0-t1} = PSD_{t0} - PSH_{t1}$$

- where ADL = additional dwelling losses
- PSD = public sector dwellings (other than those expected to be demolished)
- PSH = households in public sector
- t0,t1 denote base year and forecast year

For reasons discussed in Section 3.8 it is necessary to allow for a proportion of dwellings to remain vacant. In order to maintain consistency with the final operation involved in calculating housing requirements (as shown algebraically in Section 3.8), it would be necessary to adjust the formula as follows:

$$ADL_{t0-t1} = PSD_{t0} - PSH_{t1} (1 - VR)^{-1}$$

- where VR = vacancy rate

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## 4 INDICATORS OF HOUSING DEMAND

### 4.1 INTRODUCTION

In research commissioned by the Department of Environment Coopers and Lybrand recommended five indicators which they considered could be used in the planning process to help make informed judgments about housing market demand.<sup>1</sup> This research drew extensively on earlier work conducted by the consultants into land-use planning and the housing market in the South-East, in which they presented a "long list" of indicators which had been used or considered.<sup>2</sup>

This "long list" of indicators served as a checklist which Coopers and Lybrand used in interviews with a range of actors in the housing market - estate agents, builders, planning consultants, building societies, and professional organisations including the House-Builders' Federation. A seminar was subsequently held to discuss the interim findings with participants drawn from these groups and from county and district planning authorities.

The criteria against which the usefulness of the potential indicators was assessed were as follows:<sup>3</sup>

- relevance to the property industry in terms of its view of market demand;
- ease of use within the planning process;
- ease of collection of valid, relevant information;
- avoidance of confidentiality problems.

In summary, the indicators ultimately recommended for use comprised:

- a house price indicator;
- a "planning indicator";
- an "estate agents indicator";
- a "builders' indicator";
- a migration indicator

The evaluation of Coopers and Lybrand's five recommended indicators is the principal objective of this chapter. We begin by discussing the

usefulness of house price information, introducing basic concepts, considering the terminology of demand, and addressing the important issue of spatial definition. We proceed by discussing ratios of affordability which have been used in different ways by the house-building industry and local planning authorities. The remaining indicators are examined in turn, and issues arising in the use of "soft information" provided by property professionals identified and debated. Lastly we consider land availability studies and address the relationship between planning policies and the calculation of shorter term "land supply requirements".

#### 4.2 HOUSE PRICE

##### Basic Concepts

A demand curve illustrates the quantity of a product an individual consumer is able and willing to purchase at each possible price. It follows that individual demand curves can be combined to show the aggregate behaviour of all consumers at each possible price, the resulting curve illustrating market demand for the product. Similarly, supply curves illustrate the quantity supply agencies are able and willing to sell at each possible price, and a market supply curve may be constructed in the same way.

There can be considerable confusion in what is meant by an increase or decrease in demand. Basic economic texts adopt the principle that a change in demand is a reference to a shift in the position of the curve, whereas a "change in the quantity demanded" is a reference to a movement along the curve.<sup>4</sup> That is to say, a change in quantity demanded is due to a change in the price of the product, whereas a change in demand may result from a change in any other factor. This principle is adopted here.

Figure 4.1

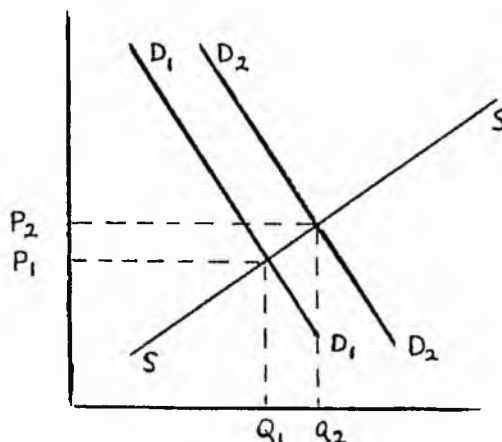
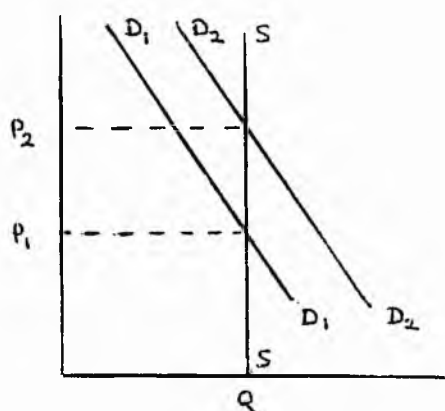


Figure 4.1 illustrates an increase in demand, shown by the shift in the (market) demand curve from  $D_1D_1$  to  $D_2D_2$ . Initially, consumers are able and willing to buy and sell quantity  $Q_1$  at price  $P_1$  as determined by the intersection of  $D_1D_1$  and  $SS$ , the (market) supply curve. As demand rises the number of transactions increases to  $Q_2$  and price rises to  $P_2$ . It may therefore be hypothesised that an increase in price indicates an increase in demand.

This is not to say that an increase in demand is necessarily associated with an increase in the number of transactions, since supply may be inelastic to changes in price, as show in Figure 4.2.

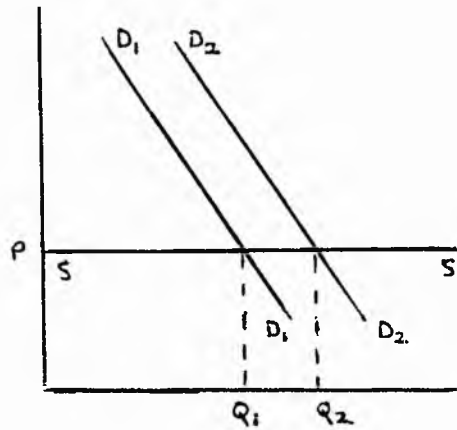
Figure 4.2



We discuss why such a situation may arise in the housing market below. However we should also note that in a situation of perfect elasticity of supply no change in price would occur. This scenario is

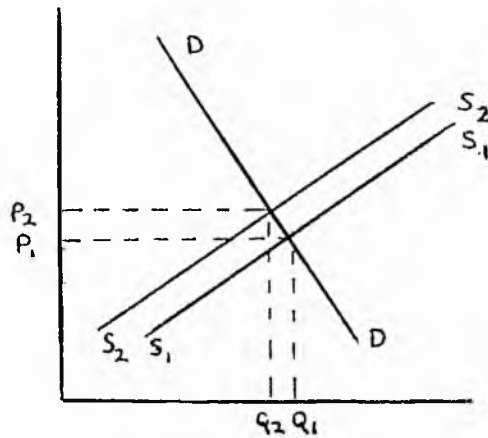
illustrated in Figure 4.3.

Figure 4.3



A change in price may result from a change in supply. Figure 4.4 shows the fall in supply from  $S_1S_1$  to  $S_2S_2$ , a rise in price from  $P_1$  to  $P_2$ , and a fall in quantity demanded from  $Q_1$  to  $Q_2$ .

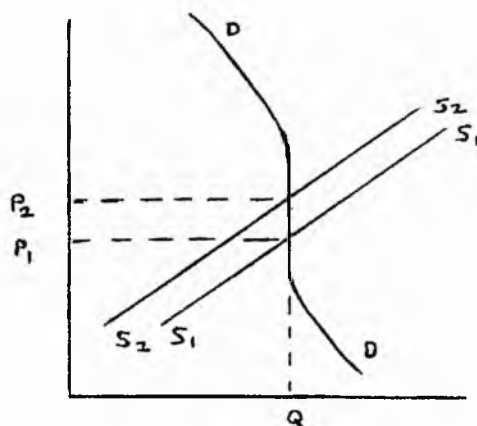
Figure 4.4



In summary then, a rise in price may be associated with an increase in demand, with or without a rise in the number of transactions (Figures 4.1, and 4.2), or with no change in demand and a fall in the number of transactions (Figure 4.4).

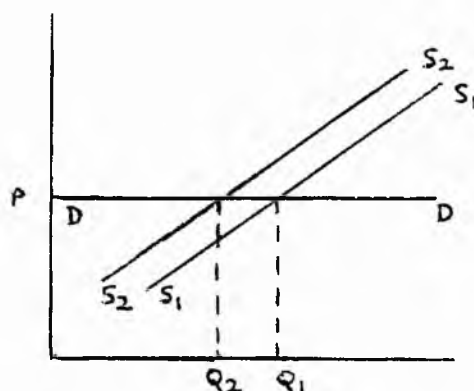
In fact there is scope for further problems in interpretation. For example, if supply falls, but demand is relatively inelastic over the relevant price range, then a price rise will occur, with no change in either demand or quantity demanded. This scenario is illustrated in Figure 4.5.

Figure 4.5



If, on the other hand, demand is perfectly elastic then a fall in supply will result in a fall in quantity demanded with no change in price.

Figure 4.6



#### Coopers and Lybrand's House Price Indicator

It is in the context of the basic concepts discussed above that we consider Coopers and Lybrand's house price indicator. Coopers and Lybrand make the following proposition:

"If demand (backed by the ability to pay) increases well above the availability of houses in a particular market area, the price can be expected to increase faster than the general rate of price rises. This price rise will continue if the demand pressure continues unmatched by purchase opportunities. A higher than average rate of increase in prices is thus usually a direct indicator of unsatisfied effective demand."5

They conclude that:

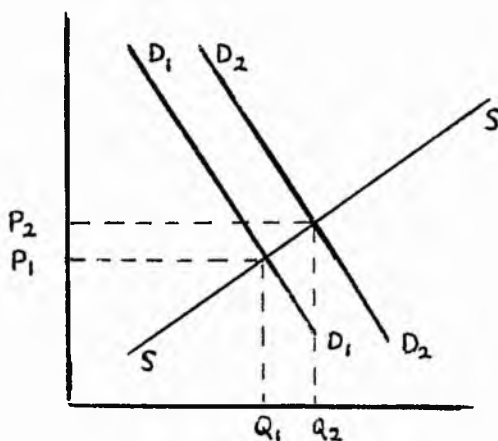
"excess demand in an area can be identified by a relatively high rate of increase of used (and new) house prices, compared with other market areas."6

There are profound difficulties in establishing what this involves since "demand", "the availability of houses", "unsatisfied effective demand", and "excess demand" are not defined. However we shall retain the principle that a change in demand refers to a shift in the demand curve and we shall interpret "the availability of houses" as a reference to quantity supplied.

We may consider a number of scenarios relating to house price movements in a single, entirely self-contained area. In each case we shall assume that at time  $t_1$ ,  $Q_1$  dwellings are being traded at price  $P_1$ . We shall also assume in each case an increase in demand from  $D_1$  to  $D_2$ . That is to say, the number of dwellings which consumers would be able and willing to purchase at each possible price increases by the same amount in each scenario.

Figure 4.7

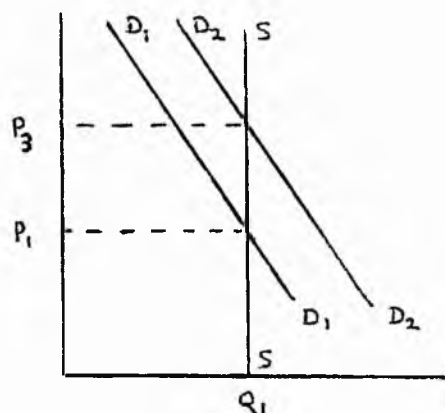
Scenario One



In Scenario One the assumption is made that quantity supplied responds instantaneously to the change in demand. Assuming no further change in supply or demand in a time interval from  $t_1$  to  $t_2$ , then at time  $t_2$ ,  $Q_2$  dwellings are traded at price  $P_2$ .

Figure 4.8

Scenario Two

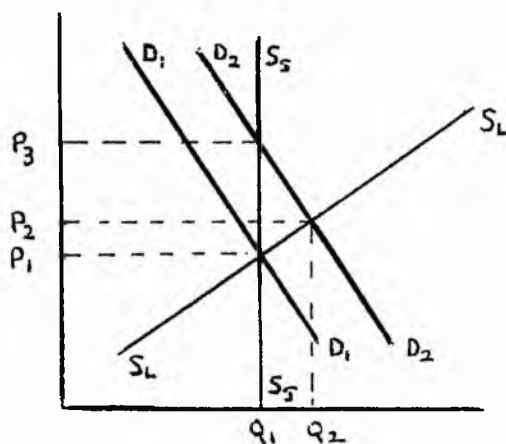


In Scenario Two supply is inelastic and at time  $t_2$ ,  $Q_1$  dwellings are traded at price  $P_3$ . A comparison between Figure 4.7 and 4.8 leads us to endorse the proposition that if demand increases well ahead of quantity supplied a larger increase in house price will occur.

We shall examine reasons why housing supply may be inelastic shortly. First we must consider a third scenario, in which supply is inelastic in the short-run, but less inelastic in the long-run. Figure 4.9 illustrates Scenario Three.

Figure 4.9

Scenario Three



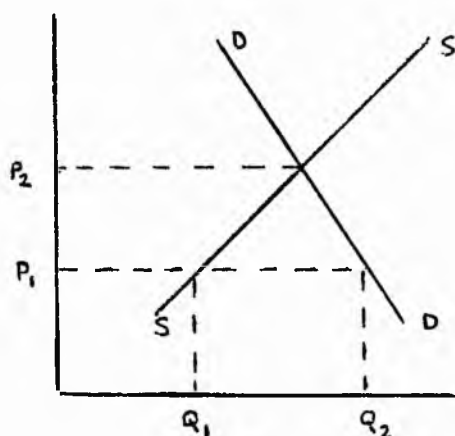
In the short-run then, we see the rise in price from  $P_1$  to  $P_3$  (as in Scenario Two), with  $P_3$  being determined in this case by the intersection of  $D_2D_2$  and the short-run supply curve  $S_sS_s$ . However in the long-run price falls back to  $P_2$  (as in Scenario One), with  $P_2$  being determined in this case by the intersection of  $D_2D_2$  and the long-run supply curve  $S_LS_L$ . If the time interval between  $t_1$  and  $t_2$  is relatively short then a high price increase will be recorded; if the interval is relatively long, a low increase will be recorded.

If a high rate of house price increase were recorded (a rise to  $P_3$  in either Scenario Two or Three), then according to Coopers and Lybrand's proposition would be indicative of "excess demand". A basic textbook definition of excess demand is as follows:

"Excess demand exists whenever quantity demanded is greater than quantity supplied at the prevailing market price... [It] is an economic force which exerts upward pressure on price."<sup>7</sup>

Figure 4.10 shows a situation of excess demand at price  $P_1$ :

Figure 4.10



If consumers previously purchased  $Q_1$  dwellings at price  $P_1$ , and demand were to rise such that they would be able and willing to purchase  $Q_2$  at price  $P_1$ , demand would only be satisfied at this price in a situation of perfect elasticity of supply. Thus if Coopers and Lybrand's reference to "demand (backed by the ability to pay)" is a reference to demand at the initial prevailing price then any increase in price could be interpreted as indicating excess demand.

Yet if price rises the new price may represent a new equilibrium price ( $P_2$  in Figure 4.10), at which supply and demand are in balance. In such a situation excess demand would no longer exist. We might therefore propose that a relatively high rate of house price increase may be indicative of an increase in demand in a situation in which supply is relatively inelastic, rather than of excess demand itself.

In neo-classical economics the assumption is made that a permanent state of equilibrium exists, with quantity supplied responding instantaneously to changes in demand. This is the situation in Scenario One. The validity of this assumption in relation to considering the housing market is dubious. If firms correctly anticipate the future pattern of demand and complete new building as demand increases then the inflationary effect on price will be minimal and this assumption may have some justification. However builders will seek to avoid holding stocks of dwellings while waiting for an upturn in demand due to the high costs of doing so.

We noted in the last chapter that one signal of increasing demand may be a fall in vacancy rates : owners of existing vacant dwellings may respond by selling their properties. However we also noted that there may be a delay in placing these dwellings on the market as owners undertake improvement work. The delay in builders' placing new properties on the market will be greater, quite simply because there will be a production lag corresponding with the time taken in construction. Moreover we may expect that as demand starts to rise there would be inertia amongst builders as they await a clear price signal, and can be confident that a market will exist for their products. Various factors will influence the length of the lag period, including the availability and cost of credit, the efficiency with which sub-contractors are organised, and the ease with which planning permission can be obtained.

This means that in the short-run supply is inelastic and price rises rapidly. Over time, as new construction is completed quantity supplied may be expected to increase to meet the rise in demand. This is the situation in Scenario Three. The high price in the short-run

represents a short-run equilibrium, long-run disequilibrium price. If on, the other hand, supply is inelastic in the long-run as well as the short-run, then the high price established in the short-run also represents the long-run equilibrium price. This is shown in Scenario Two. Such a situation may result from the implementation of a planning policy restricting new housing development.

We must at this juncture consider the nature of housing as a product. While it is convenient to refer to the housing market as a single entity, it is important to recognise that this represents a considerable simplification of reality. Dwellings are not homogeneous, and may be classified in a number of ways, for example by type, age, size or residential capacity, location, as well as by tenure. An increase in demand for dwellings of one type may co-exist with stability in the market for dwellings of another. An analysis of price trajectories for different dwelling types would therefore be necessary to reveal those sectors experiencing rising demand and inelasticity of supply, and to assess reasons for the failure of the supply response.

#### Spatial Definition

Coopers and Lybrand recommend that price movements and other indicators should be analysed for each housing market area. MacLennan addresses the significance of the way in which area boundaries are determined in demand analyses:

"This issue is critical to how locationally specific demand estimation ought to be and of the extent to which different locations may be regarded as close or perfect substitutes for each other."<sup>8</sup>

However he continues by identifying three key problems in area definition: a lack of conceptual clarity in the interpretation of the term "market", a problem in agreeing what a "close" substitute means, and a problem of empirical identification.

Coopers and Lybrand recommend the use of price levels by house type in determining boundaries. That is to say, type-specific price data

would be collected for small areas and these areas grouped together where prices were similar. This raises two issues - firstly that market areas may vary according to sector and secondly that price data is required at very fine spatial scales. In the light of their research in the South-East Coopers and Lybrand take the view that a county would generally comprise ten to twenty market areas, varying in size, and consisting of towns, suburbs, groups of villages and areas along arterial routes.<sup>10</sup>

Planning authorities seeking to identify market areas have generally adopted a pragmatic approach, based on the identification of such settlement types and the judgments of estate agents. This is the case in the studies undertaken by Hampshire and Hertfordshire, and in Roger Tym's study of South Warwickshire.<sup>11</sup> In other cases district council areas have been used, as in the studies by Wiltshire, Cheshire and PEIDA,<sup>12</sup> although it is generally acknowledged that market areas will not neatly coincide with administrative boundaries.

An additional point has to be made here. Planning authorities may undertake "demographic" assessments of housing requirements (as discussed in earlier chapters), for areas which they refer to as housing market areas but which contain significant price variations, as in Strathclyde. PEIDA observes:

"In terms of economic theory these are not market areas. In effect, the areas could be regarded as 'housing allocation areas' within which the Regional Council considers that people can 'reasonably' be required to move in order to obtain housing."<sup>13</sup>

Strathclyde's approach was based upon an analysis of inter-district migration patterns. PEIDA's view is that these are unsatisfactory since they will reflect existing planning policies : it should not be inferred that consumers are indifferent to physically identical dwellings within the delineated areas.

Another issue to consider is the relationship between place of employment and place of residence. We debated the merits of forecasting employment and undertaking "demographic" assessments of

housing requirements for the travel-to-work areas defined by the Department of Employment in Chapter Two. However aside from the fact that these areas are not entirely self-contained, we must acknowledge that within them commuting distances which are regarded as "acceptable" to workers will vary according to income, social group, personal preference and the geography of the communications network. Thus although empirical evidence suggests that inter-district migration is largely due to housing market factors,<sup>14</sup> some migration may be expected to occur as a result of a spatial redistribution of workplaces. Indeed housing market analysts from the Chicago school<sup>15</sup> onwards have attached considerable importance to place of work as a determinant of residential location choices.<sup>16</sup> A further issue is that market area boundaries may change over time.

We now consider the interpretation of price movements in a spatial policy context, a subject not addressed by Coopers and Lybrand. Consider an entirely self-contained system within which two housing market areas are identified by judgment. One area is urban in character, and consists of a small town and its immediate environs. The other includes a series of villages and is predominantly rural. We shall make the simplifying assumption that dwellings are homogeneous in all aspects other than location.

Demand increases in each area, and price rises rapidly in the short-run, reflecting a production lag. However in the urban area existing planning policies make provision for a substantial amount of new development, whereas in the rural area this is not the case. Thus supply is constrained in the rural area and a relatively high price persists. The planning authority is presently involved in reviewing its policies. It has undertaken a demographic forecast of housing requirements for the system as a whole and wishes to use price information to determine allocations in accordance with a strategy of planning for housing demand.

The fundamental issue to be faced is in establishing what "a strategy of planning for housing demand" actually means. We might take the view that a relatively high price in the rural area will lead to an

increase in demand in the urban area. We might therefore propose that the authority should emphasise new housing provision in the urban area.

However, the search displacement which this process involves will result in consumers making sub-optimal choices regarding location and arises due to the effects of the past policies : demand is "deflected" from the rural to the urban area.

"As well as effective demand there is also 'latent demand'. Latent demand can be considered as that demand which cannot be met because the individual's disposable income is insufficient to meet a price adjusted by a constrained supply... [If indicators] concentrate on effective demand this will pose a particular difficulty, if only because the price of a product adjusts to a level where the supply and effective demand are always in balance."<sup>17</sup>

This is the view of David Chiddick and Mervyn Dobson (former National Land and Planning Officer for the House-Builders' Federation). From this perspective then, it may be argued that the planning authority should respond by emphasising new housing provision in the rural rather than urban area. However there will still remain the task of quantifying the urban/rural split. In any case the assumptions on which the decision is made will not necessarily remain valid over time.

#### House Price Data and Computation

Many county planning authorities collect house price data, principally from the main building societies - the Nationwide Anglia, Halifax and Abbey National.<sup>18</sup> Each society provides price information by house type, purchaser type (for example first-time buyer or former owner-occupier), and by postcode area of purchased property.

In theory this permits analysis at a variety of spatial scales. In practice a disaggregate analysis at local levels may often be unworkable due to small sample sizes. The smaller the sample size the greater the potential for errors due to the inclusion of "atypical" properties within a particular dwelling category, and particular

difficulties may arise regarding certain property types in rural areas. The use of the term "sample" is in a sense misleading since the societies may be willing to provide information on all properties on which they grant mortgages: the problem which arises is that each specifies the variables differently, making integration difficult if not impossible.

A trade-off may be required between the level of spatial disaggregation and disaggregation by house type. In Kent for example, type-specific house prices are analysed only at the county level : at finer spatial scales analysis is undertaken by average price across all types.<sup>19</sup> However this raises detailed issues of computation. It may be argued that an "average house price" is a meaningless concept. One approach to computation is simply to sum individual dwelling prices and divide by the total number of dwellings. If this approach is used then a distorting effect may occur, if, for example, the lending policies of the society change over time.

Consider the following example. Initially the mix of properties on which an individual society grants mortgages is representative of the mix of properties being traded in the market as a whole. (The term "mix" is used here to refer to the distribution of dwellings between different dwelling type categories). The society then shifts its emphasis away from providing mortgages to first-time buyers and towards the market for "executive" homes. The computed average house price may therefore be expected to rise for reasons other than changes in housing demand or supply.

An alternative approach is to compute the unweighted average of type-specific average house prices:

$$ADP = \frac{\sum_i ADP_i}{N}$$

- where ADP = average dwelling price

i = dwelling type

N = number of dwelling types

This approach has been used by Hampshire County Council<sup>20</sup> and has the advantage of eliminating the effect of changes in the mix. However one obvious shortcoming is that if sample sizes of dwellings of each type  $i$  are such that a disaggregated analysis is untenable, then the errors in  $ADP_i$  will be built in to the "overall" average price ADP. (In the Hampshire study the "overall" average price was used only as a summary measure : sample sizes were sufficient for the main analysis to be based on house prices by type).

There may be cases in which the sample size in only one house type is inadequate. Here, an option might be to undertake a disaggregate analysis, omitting this particular category. This would be preferable to an analysis of changes in the "overall" average house price, although it would also mean that the analysis would be incomplete. Indeed we may contemplate a further inadequacy in using house price data to construct indicators : it is not possible to make any comment regarding the demand for properties of a type which are not already present in an area.

Some idea of the magnitude of the problems which may arise is provided by Cheshire's analysis of average house price data supplied by different building societies.<sup>21</sup> Over the 1979-85 period average price in the county rose by about 50% according to Nationwide Anglia data, but under 40% according to Abbey National data. When the analysis is limited to new properties the discrepancy is staggering. According to the Abbey National the average price of a new dwelling rose by 50% : the Nationwide Anglia data suggests that it had almost doubled.

Price information may be available from banks and estate agents, as well as the building societies. However county planning authorities generally regard in-house surveys of newspaper advertisements as the main alternative to building society data. For example Cambridgeshire undertakes a six-monthly survey of properties advertised in the local press over a one week period.<sup>22</sup> The drawbacks of this approach are as follows.

Firstly, the prices are selling prices rather than sale prices. Thus in a period of excess supply dwellings may remain advertised at an unrealistically high price for a number of weeks before vendors agree to sell at a lower price. Secondly, surveys may have to omit those new properties for which advertisements quote only "prices from" baselines. An additional problem is that some properties might not be advertised locally. These may include dwellings built for a commuter market, and those marketed as second homes.

Cambridgeshire considers the main advantage to be comparability over time. Clearly, an in-house survey does not restrict an authority to the dwelling classification used by the building societies. However there is a view amongst some authorities that given resource constraints, the extra manpower required in the survey approach cannot be justified.<sup>23</sup>

#### 4.3 AFFORDABILITY RATIOS

Changes in demand for owner-occupied dwellings may be the result of a variety of factors including changes in demographic characteristics and the size of the population, preferences, incomes and wealth, the availability and price of substitutes, and the availability and cost of credit. Thus the housing boom experienced in 1988 can be attributed to the Chancellor's advanced warning of the abolition of multiple tax relief on mortgages, a reduction in personal taxes leading to a "wealth effect", and a reduction in interest rates.

In their regular economic bulletins for the House-Builders' Federation, Fleming and Nellis review trends in various "key ratios of affordability", notably price:income, mortgage advance:income, and mortgage advance:price.

"The ratio between house prices and average earnings is often taken as a touchstone of the affordability of housing, with a ratio of three being taken as a conventional norm. A rise in the ratio much above this level is taken as a signal of conditions which cannot be sustained."<sup>24</sup>

However the rise in the ratio since the 1988 boom, and the pessimistic views of various commentators in the City, have seen Fleming and Nellis seek to reassure the house-building industry by placing the ratio in context. They point out that a study of the 1959-88 period reveals considerable volatility in the ratio, its value exceeding three for much of the period, with a tendency to rise over time. They argue that the norm is misplaced, given the trend for more joint income purchases - facilitated by increased female participation in the labour force - and the readiness of consumers to accept higher levels of debt when linked to real assets such as housing.

The price which a purchaser can afford to pay for housing is determined not only by income but also by accumulated wealth. The higher a person's wealth, the higher the deposit he can provide on a property, and hence the higher the price he can afford to pay, for a given mortgage advance. Since owner-occupation is the commonest form of wealth it is not surprising that price:purchaser income ratios are consistently higher for existing owner-occupiers than for first-time buyers.<sup>25</sup> With a long-term trend towards owner-occupation and the potential role for inherited wealth to play in the future, it may further be argued that the ratios for both groups will continue to rise.

A second indicator is provided by the ratio of mortgage advance:income, with a rising ratio indicating pressure on affordability as house prices rise faster than incomes or fall more slowly. Scores on these indicators, derived from building society data, are regularly published in House Builder for the regions, with some analysis also undertaken at the county level. It should however be noted that the statistics relate to the incomes of those actually purchasing dwellings (as opposed to the average earnings of all those living in an area), and do so with reference to the principal source of income of the main borrower only. A third indicator, the size of the mortgage advance as a percentage of house price can also be computed from this information, with a high percentage advance being taken as indicative of pressure on affordability.

Historically a strong negative relationship is evident between changes in the mortgage interest rate and the number of mortgages granted.<sup>26</sup> This is as we would expect : an increase in the interest rate leading to a fall in demand. Indeed the capacity of potential house-buyers to meet anticipated mortgage repayments is likely to be a critical factor in consumers' purchase decisions. From this perspective we may reconsider Fleming and Nellis's assumptions about future trends in price:income thresholds. Whether consumers will continue to accept higher levels of debt is open to question, given the experience of very high interest rates in 1989 and 1990.

We must, however, consider the possible future effects of the decision to join the European Exchange Rate Mechanism (ERM) in October 1990. Estate agents gave a cautious welcome to the 1% fall in mortgage rates which immediately followed the announcement of the decision, and we may expect these to fall further. On the other hand the experience of France on joining the ERM suggests that firms may seek cuts in labour costs as a means of increasing productivity and international competitiveness. This means that assumptions about rising incomes and/or increases in the number of persons in employment have to be qualified, at least in the short to medium term.

A number of planning authorities have sought to analyse price:income ratios. For example the Hertfordshire Housing Study discussed the effect of house price rises upon first-time buyers lacking equity, and prospective in-migrants from less prosperous regions who would be faced with a substantial mortgage increase. The calculation involved first determining an appropriate house price base. In the case of first-time buyers this was assumed to be the average price of flats and maisonettes at the lower end of the market, this being the accommodation traditionally occupied by such persons. The size of deposit and earnings required were then calculated on an assumption of a 90% mortgage at three times the annual salary.<sup>27</sup>

The salary requirement was then compared with gross earnings as revealed by the New Earnings Survey, which provides data at the county level.<sup>28</sup> Of course one issue which this raises concerns the

usefulness of a mean earnings figure, since prospective young first-time buyers may be expected to have lower earnings than other groups.

The New Earnings Survey also includes the thresholds to earnings of the top and bottom 10% of persons employment. (In fact in Hertfordshire it was found that even an average wage would be insufficient to enable a single first-time buyer to purchase a property<sup>29</sup>). The analysis for prospective in-migrants was conducted in a similar way, using various house price bases and making assumptions about the equity derived from the sale of an existing property.

Substantial house price differentials may stimulate migration from higher-priced to lower-priced counties. The ability of residents presently in higher-priced areas to compete successfully with existing residents in the county of destination may be assisted by the higher equity to be derived from their properties and/or higher earnings. Thus prices in the county of destination may rise, resulting in an "affordability gap" for elements within the existing population. This raises the question of "local housing need" policies, discussed in Chapter Two.

A range of issues arise in connection with the different implications for existing residents presently in or not in owner-occupation, the relationship between the demand for dwellings of particular types and the structure of the existing housing stock, and the strategies of builders and estate agents. Marketing strategies are likely to be of particular significance since prospective migrants' knowledge of housing opportunities in alternative locations may be extremely limited. We shall return to the issue of migration later in the chapter.

#### 4.4 PLANNING INDICATORS

Information relating to numbers of planning applications, numbers of permissions, and permissions implemented, may be combined in various ways in attempts to indicate demand. The clear advantage of "planning

indicators" is that much of the data should be readily available to county planning authorities, either from in-house monitoring systems or from those of the district councils. One planning indicator which merits particular consideration is building rates. The use of this indicator is discussed in a separate section, later in the chapter.

Perhaps the most obvious hypothesis is that changes in the number of planning applications indicate changes in demand as perceived by builders. Since the acquisition of planning permission represents an early stage in the development process, the number of applications may be expected to rise as soon as builders sense an increase in demand, thereby giving an advance indication of such a change.

However there are various difficulties in interpreting changes in the number of applications, relating principally to the influence of planning policy. Firstly, an increase in applications may be expected to follow the publication of a new Structure Plan promoting an increase in housing development or a new Local Plan allocating further sites for housing. Similarly if plans were to include restrictive policies then builders may be less inclined to apply for permission if they see little likelihood of their being successful.

In fact the relationship may be far more complex. For example, if a Structure Plan were to indicate that development would be restricted there may actually be an increase in applications as builders seek to acquire permission on individual land plots, prior to the translation of the broad policies into detailed site allocations in Local Plans. Another factor is whether a district planning authority regards policies in draft plans as a material consideration in determining applications. If it does not, then publication of draft proposals of a restrictive nature may prompt a similar response as builders attempt to secure permission prior to formal approval or adoption.

In any case, builders may be influenced in their behaviour by central government thinking, the probability of their winning a planning appeal, and the costs of undertaking an appeal. They may also be influenced by their perceptions of whether the authority would be

likely to grant permission rather than risk losing an appeal and itself face costs of time and money.

Due to the large number of appeals in connection with various types of planning application, central government presently favours the local reconciliation of objections to development proposals where possible.<sup>30</sup> This may take the form of a local planning authority imposing conditions on a proposal, or requiring that a builder enters into a planning agreement. Bargaining between the parties may result, inter alia, in the dedication of part of a site to another land-use with a consequent reduction in housing capacity.

This in turn raises the question of how a "planning application" is defined. It would be more useful to consider information on the number and type of dwellings for which permission is sought than the number of development proposals themselves. Yet if the builder prefers as a first step to seek outline rather than "full" planning permission, so as to establish the acceptability of the "principle" of housing on a site, this information may not be available. A builder may adopt such an approach in order to minimise costs if the application were to be rejected, submitting a detailed application for the approval of "reserved matters" at a later date if successful. A further problem is that a site may be subject to two or more applications.

#### Coopers and Lybrand's Planning indicator

Coopers and Lybrand's view is that:

"with the exception of the proportion of permissions implemented within each year to expiry, there would be little value in attempting to use planning indicators as indicators of demand."<sup>31</sup>

A number of initial observations can be made here. Firstly, we note the negative tone with which Coopers and Lybrand make their recommendation. The indicator is proposed by default, given the perceived inadequacy of any alternative. Secondly, there is a problem in establishing what the proposed indicator is supposed to show. Thirdly, no guidance is given as to how it is actually supposed to work.

Usually, a "full" planning permission must be implemented within five years of its being granted. However there may be circumstances in which this period is extended, notably where this is one of the terms of a planning agreement. Similarly an agreement may specify that development should be initiated at a certain time within the five year period, or be phased in a particular way. This will introduce a source of uncertainty when interpreting the indicator.

In the case of outline permission, application for the approval of "reserved matters" must be made within three years.<sup>32</sup> Implementation must occur within five years of the original permission, or within two years of the approval of "reserved matters" if this gives a longer overall period. The indicator requires as a denominator permissions granted in a particular year. If the time at which permission is granted is defined as the time at which approval is acquired for "reserved matters" then the builder may have as little as two years for implementation. This places the analysis of permissions gained in this way on an incomparable basis with "full" permissions. If instead the time at which permission is granted is defined as the time at which outline permission is acquired, detailed information about numbers of dwellings may be unavailable. Moreover, the approval of "reserved matters" may not actually be forthcoming.

Given these uncertainties it may be sensible to include only those permissions which are granted in "full" and are not subject to planning agreements, although this approach may itself distort the results. Additional problems arise in establishing what is meant by the implementation of planning permission. In law this relates to the time at which construction activity is initiated, although interpreting precisely what this involves is a subject of considerable debate. In any case an authority's ability to identify when exactly a dwelling "start" or "completion" occurs will depend on the quality of its monitoring system and the willingness of builders to co-operate. Given the difficulties in identifying either we may reasonably take the view that for the purpose of applying the indicator starts should be used rather than completions since the latter will incorporate production lags.

In order to proceed with our evaluation we shall assume away the (considerable) difficulties discussed above and debate the interpretation of the indicator using examples. In Scenario One a local authority grants permission for 10,000 dwellings at the start of Year 1.

Figure 4.11  
Scenario One

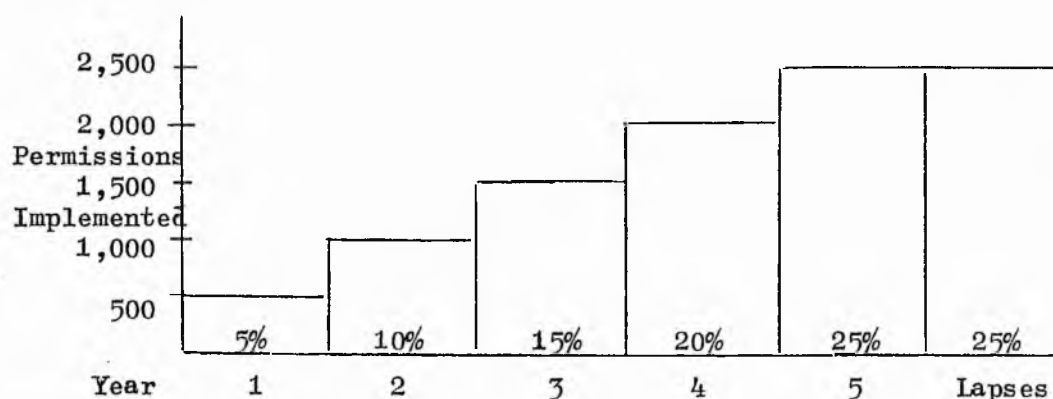
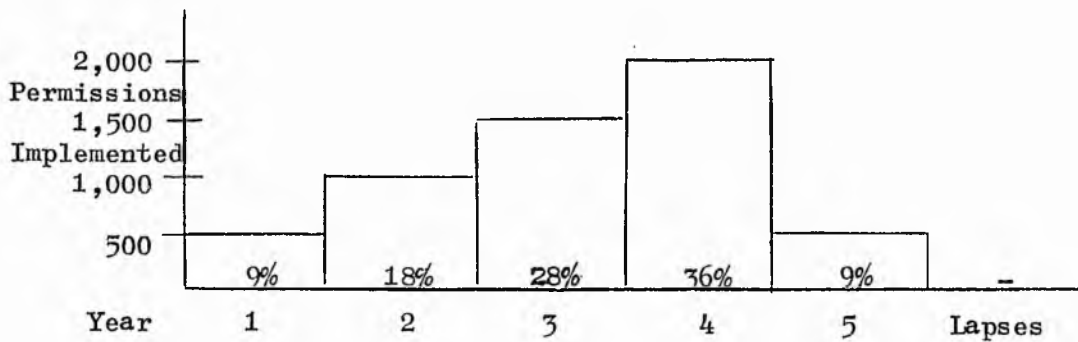


Figure 4.11 shows an increase in the number of starts, with the proportion of permissions implemented within each year to expiry rising from 5% in Year 1 to 25% in Year 5, and 25% of permissions lapsing. It may be proposed that the rising proportion indicates an increase in demand, with changes in the number of starts representing changes in quantity supplied, allowing for a production lag. On the other hand a change in the number of starts may not indicate a change in demand itself : it may instead represent an increase in supply which may lead to an increase in quantity demanded. Even if there is an increase in demand, the timing of starts may reflect builders' own phasing policies, particularly on large sites. Similarly, there may be cases in which a site is not already linked to the highway network and off-site infrastructure development is required before any on-site construction activity can commence. If particular sites were not already in the ownership of builders there may also be a lag period between the grant of permission and starts taking place as ownership is transferred. The indicator is therefore ambiguous.

Figure 4.12

Scenario Two



In Scenario Two the number of permissions implemented in the first four years is the same as in Scenario One. However the proportion taken up is much higher. Thus in Scenario One 50% have been implemented and 50% remain outstanding at the end of Year 4, whereas in Scenario Two 91% have been implemented with the result that only 9% remain outstanding. It may therefore be argued that the high proportion of permissions implemented in Scenario Two indicates that the local authority has granted an insufficient number of permissions, placing a constraint upon supply.

This proposition is open to a fundamental criticism. The indicator abstracts the study of the implementation of permissions granted in a particular year from the study of those granted in other years. The number of permissions which were granted at the start of Year 1 and outstanding at the end of Year 4 does not necessarily represent the total number of outstanding permissions since other permissions may have been granted in the intervening period. This means that we cannot conclude from the indicator that supply is constrained by the local planning authority.

We should also acknowledge that if permissions relate to types of dwellings or site configurations which builders no longer consider adequate to meet demand in a changing market, they may not be implemented. This means that if lapses do occur, as in Scenario One, we cannot necessarily conclude that supply is not constrained.

In fact the way in which the indicator is to be constructed is far from clear. For example, an article in Planning interpreted the indicator as being the "proportion of planning permissions taken up in each year".<sup>33</sup> In this case the numerator would still be provided by the number of permissions implemented in a year but the denominator would be provided by the total number of permissions outstanding at the start of the year. Thus a high proportion could indicate that a local authority had granted an insufficient number of permissions. However a high proportion could also indicate that builders and planners had become more adept at forecasting the qualitative aspects of demand. Conversely a fall in the proportion could indicate either a fall in demand or an inadequacy in the nature of the outstanding permissions.

In concluding this section we note that Hampshire County Council, which has sought more faithfully than any other to follow Coopers and Lybrand's recommendations in its housing market study, rejected their planning indicator on the basis that it would be particularly subject to non-demand influences.<sup>34</sup> Given our analysis this view is entirely justified.

#### 4.5 INFORMATION FROM ESTATE AGENTS AND BUILDERS

##### Information from Estate Agents

Estate agents are intimately connected with the operation of the housing market and we may debate the proposition that an increase in the number of applicants registered with estate agents, expressed in terms of house type and price, would indicate an increase in demand.

In principle this represents a powerful indicator, relating directly to the intentions of prospective house-buyers. There are, nevertheless, a number of difficulties. Firstly, we have to assume that persons registering an interest are realistic with regard to their ability to pay. We also have to assume that they are expressing a genuine preference and intention to buy : registering with agents and viewing properties may be seen as "sport".

Secondly, not all prospective house-buyers will register with estate agents, and some will purchase directly from builders (or other sellers). An increase in the number of applicants may indicate an increase in demand, but it may also indicate difficulties in finding a property to purchase. That is to say, it may indicate a situation of excess demand (quantity demanded exceeding quantity supplied at the prevailing price). Of course excess demand is not uniquely associated with an increase in demand : it may instead result from a fall in supply.

Thirdly, potential consumers may register an interest in more than one type/price category, ultimately purchasing only one property. This obviously has implications for assessing the qualitative aspects of demand. Fourthly, if the indicator is constructed as the aggregate of applicants to all estate agents in an area, double-counting may occur, since some may register with more than one. If on the other hand the analysis is limited to one agent's records the results may be unrepresentative.

Despite these limitations we may reasonably take the view that estate agents do represent an important source of information regarding housing demand, given their direct contact with consumers. The problem of course is how this information is used. Coopers and Lybrand state that:

"The relative level of interest in different market areas is ... indicated by the numbers of those who are seeking to buy in the area... One possible indicator is a simple count of applications to agents. Since house buyers can approach more than one agent the numbers would not represent the level of demand, but their relative numbers for different house types and locations would suggest relative demand pressure".<sup>35</sup>

Here then the information would be analysed cross-sectionally rather than in time series form. We can identify a particular advantage in this approach. It would be possible to compute ratios of the number of applicants registering an interest in purchasing in each housing market area to the total number of applicants registered in the whole of a county. If a planning authority were to undertake a projection

of households at the county level, these could be distributed between market areas by applying the ratios.

We should note a number of drawbacks however. Firstly, we would be making an implicit assumption that the locational preferences of all households would reflect those expressed in relation to owner-occupied dwellings. Secondly, computing ratios specific to dwelling type and/or price range may point to important differences in locational preference. Thirdly, in registering, applicants are declaring an interest at the prevailing price. If price differentials between market areas were to change the relative interest between them may similarly be expected to change. Fourthly, acquiring a new (as opposed to second-hand) property may be the motivating factor behind migration between housing market areas, in which case consumers may deal directly with builders. Finally we cannot be certain that an analysis of applicants will in fact show relative interest, for the reasons discussed at the start of this section. Coopers and Lybrand pick up on this point when they state that an approach based on a simple count of applicants:

"assumes applicants are realistic to the same degree about what they can afford in different areas."<sup>36</sup>

We have to conclude (in the absence of any further comment) that it is for this reason that they do not recommend the use of simple counts of applicants as an indicator. They do, however, propose a "migration indicator", in which applicants from outside a housing market area (or other area, however defined) are expressed as a proportion of total applicants registering an interest in purchasing in that area. They consider that this would be useful in establishing whether a market was largely "local" or catering mainly for in-migrants.<sup>37</sup> Organising the data in this way would overcome their objection to the use of simple counts of applicants, and the knowledge gained could indeed be beneficial. However the indicator would suffer from the other weaknesses identified above, and is, arguably, less useful than the "distribution" indicator which we have considered.

As their main "estate agents' indicator" Coopers and Lybrand recommend a choice of three ratios: the ratio of applicants to the number of sales, the ratio of applicants to the number of instructions to sell, and the number of appointments to view per sale. In their view a high value for the first two indicators would show "high demand", as would a low value for the third.<sup>38</sup> They see no reason to monitor one indicator rather than another, and we shall therefore concentrate on the first.

It is not clear how this indicator is supposed to be constructed. Firstly, earlier comments by Coopers and Lybrand suggest that disaggregation by house type and price range is desirable, so the denominator (sales) would be provided by the number of sales of a given type and price recorded by estate agents in a specified time interval. Secondly, we can only presume that the numerator is to be provided by the number of applicants (disaggregated in the same way) registered with estate agents at the start of this time interval. Some of these applicants may be successful in purchasing a property : others may not.

In this context we would deduce that the term "high demand" is a reference to a high quantity demanded relative to quantity supplied, since the numerator relates to the former and the denominator relates to the latter. Let us assume that all persons seeking a property register, and that at the start of the time interval all applicants are serious in intent and have the ability to pay the price then prevailing. If this were the case we might assert that a situation of excess demand would exist if the ratio were to exceed unity (that is to say, if applicants registered exceeds sales). This raises two problems. Firstly, prices may rise during the time interval, leading to the withdrawal of consumers from the market or a shift between sub-markets. (There is of course the further question of determining an appropriate length for the time interval). Secondly, sales do not in themselves constitute quantity supplied, and the indicator cannot be used to show excess supply. The only case in which the ratio would be below one would be if persons not registered at the start of the time interval were subsequently to buy houses.

Of course the assumption that all applicants are serious and realistic in intent is questionable. If we were to accept that only a proportion (K) were "genuine" we would have to amend the proposition. In this case we might consider the proposition that excess demand would exist if the ratio of applicants to sales were to exceed 1/K. That is to say:

$$\text{Excess demand if: } \frac{\text{"Genuine" applicants}}{\text{Sales}} > 1$$

$$\text{"Genuine" applicants} = K (\text{Total applicants})$$

$$\text{Excess demand if : } \frac{K (\text{Total applicants})}{\text{Sales}} > 1$$

$$\text{That is: } \frac{\text{Total applicants}}{\text{Sales}} > \frac{1}{K}$$

The proportion K is hypothetical in the sense that it cannot be measured. This means that it would only be possible to interpret Coopers and Lybrand's ratio as indicating excess demand by undertaking a comparative analysis - either over time or between areas. However this will only be valid if the proportion K can be assumed constant. Yet as we noted above, Coopers and Lybrand rejected the indicator based on the simple count of applicants for this very reason.

In summary then, expressing the indicator in this way reduces its potentially useful role in guiding the distribution of housing provision, while doing nothing to minimise the uncertainty inherent in the base information.

#### Information from Builders

Coopers and Lybrand's interviews with builders led them to the view that net change in employment in a housing market area and the development of major and minor capital projects should be monitored as background indicators of demand.<sup>39</sup> Although this information does not in itself constitute information from house-builders it is appropriate that we consider the proposals here.

We have already discussed employment change in a forecasting context in Chapter Two. One point we should raise here is that it may be more relevant to consider gross changes in employment in different earnings brackets than overall net change. For example, total employment may remain steady, but if an increase were to occur in a particular earnings bracket this could be expected to result in an increase in demand for dwellings of a particular type or price (*ceterus paribus*). Monitoring may place reliance on anecdotal sources of information, but an awareness of such changes could be useful in assessing the qualitative aspects of demand.

It is inconceivable that planning authorities would be unaware of large infrastructure developments - although whether their impacts are allowed for in plan policies and in dealing with planning applications is another question. The point being made is that less obvious changes such as the electrification of railway lines may also have an influence.

An important point to note is that within a market area builders will assess development potential on a site-specific basis. Coopers and Lybrand noted that once builders begin construction or marketing they record a number of indicators relating to purchaser interest, but suggest that their usefulness to the planning system is limited. This is because builders' main purpose in monitoring these indicators is to take action to ensure that targets are met. For example, if the sales rate (houses sold per week) on a particular site were to fall, a builder may intensify marketing activity or reduce prices so that it rises.

This means that if the sales rate in successive weeks is low in relation to a builder's targets, a subsequent rise may be due to a change in supply rather than a change in demand. That is to say, an increase in the sales rate may indicate an increase in quantity demanded rather than an increase in demand itself.

PEIDA observed that in debating strategic planning proposals in Scotland, builders' representatives usually rely on aggregates of

individual sales forecasts. Whether builders would be able to forecast sales rates over the length of a Structure Plan period is of course open to considerable doubt. Moreover PEIDA considered that this approach would lead to overestimation since no firm would be likely to forecast a fall in its market share.<sup>40</sup>

Having discussed with interested parties the potential for using builders' information in the planning system, Coopers and Lybrand concluded that:

"only the proportion of houses sold prior to completion commanded a significant degree of support, provided that the degree of completion at the time of sale could be defined."<sup>41</sup>

The numerator would therefore be provided by the number of dwellings sold prior to completion in a time interval, while the denominator would be the total number of sales in the interval (dwellings completed and non-completed at the time of sale). It may be argued that a rise in the proportion of "advance" sales in two consecutive time intervals  $T_1$  and  $T_2$  would indicate rising demand. However the number of completed dwellings available for purchase in  $T_2$  may be lower than the number available in  $T_1$ . This might reflect an earlier assumption on the part of builders of a slump in the housing market. If the anticipated fall in demand failed to materialise, builders may initiate a vigorous programme of dwelling construction in  $T_2$ . Consumer interest in these dwellings may simply reflect the non-availability of completed dwellings. In such a situation the proportion of advance sales could rise even if demand remained unchanged. Indeed, the proportion could still rise if demand were to fall, provided that the fall was more gradual than had originally been envisaged.

The proportion of advance sales may depend on the marketing strategies of different builders. Some may pursue a strategy of vigorously marketing dwellings once construction has been initiated. If the overall completion rate in an area were to remain constant in a series of successive time intervals, but the proportion of dwellings built by these particular developers were to increase, the proportion of advance sales may similarly be expected to increase.

Builders may also adjust their strategies in the light of changing market conditions. The completion rate and proportion of advance sales in an area may remain constant in successive time intervals. However while a subsequent increase in the proportion of advance sales may be interpreted as indicating an increase in demand, it may also occur if particular builders anticipate a fall in demand or wish to extend their share of the market. In either case these builders may market larger numbers of dwellings under construction in an attempt to attract consumers away from those already completed by their competitors. Conversely, at a time of rising demand builders may choose not to release properties under construction in order to take maximum advantage of an increasing price. This would be particularly likely in a non-competitive situation in which land was in short supply and concentrated in the ownership of a small number of builders.

#### "Soft Information"

In making their recommendations Coopers and Lybrand suggested that housing market studies should be conducted by a panel comprising builders and estate agents as well as officers of county and district planning authorities. An attempt was made to develop the Hampshire study along these lines, although it would be fair to say that the county planning authority did most of the work. Builders in Hampshire were highly critical of Coopers and Lybrand's "builders' indicator" on the grounds that it would reflect marketing strategies,<sup>42</sup> and the study was supplemented by surveys of builders' and estate agents' views.

On the one hand "soft information" acquired in this way may be regarded as unscientific. On the other hand the notion that "hard" data will always be more reliable is misleading, particularly given that the indicators discussed above contain so many ambiguities. There may therefore be a role for "expert" opinion. On a more pragmatic note surveys of actors in the housing market can overcome the problems associated with the reluctance to provide specific data for reasons of confidentiality. Furthermore such approaches may involve a lesser time commitment on the part of the authority, although this will depend on the nature of the survey and the degree of coverage sought.

The House-Builders' Federation generally favours the use of "soft information", although the responsiveness of estate agents and individual builders to counties' invitations to participate in survey work has been variable.<sup>43</sup> In the Hampshire study three chains of estate agents giving county-wide coverage provided "hard" data and "soft information", although one firm later pulled out. Builders on the other hand were less willing to co-operate.

"Any idea that the house builders were impatiently awaiting the integration of market demand into the planning system ... was quickly dispelled in the initial round of meetings."<sup>44</sup>

One possible reason for this is that builders may have doubts as to whether their contribution would have any impact on policy. (This may be a particularly relevant factor in Hampshire, given the county's present strategy, as discussed in Chapter Two). Even if builders' opinions do have some impact, this may not necessarily benefit them as individual firms.

The House-Builders' Federation represents a large proportion of builders in the country as a whole and generally considers itself well-placed to make comments on market demand. Its Land and Planning Officers usually have considerable experience of working in a local authority and may be on secondment from a firm operating in the region. Individual builders are in direct competition and the House-Builders' Federation cannot overtly further the interests of one member firm at the expense of another. Moreover, the Federation has a very diverse membership ranging from family firms to volume builders, which may have different opinions and interests regarding the scale and location of future housing provision. Shepley notes that there is a question over whether builders in negotiations represent the industry as a whole or just the larger builders, and acknowledges that it has sometimes unfairly been alleged that they only represent themselves.<sup>45</sup>

This brings us full circle : if individual builders do not participate in studies conducted by local authorities (or indeed by trade organisations) their views about demand may go unacknowledged.

However there is the much more fundamental point that the planning system should be concerned not with balancing the interests of competing builders but with balancing competing interests within society as a whole, and balancing market demand against other important planning considerations. Commentators from a local authority background interested in developing techniques have expressed a hope that such work can continue without necessarily giving more power to builders.<sup>46</sup> Clearly, builders would see the issue from an altogether different perspective.

#### 4.6 LAND AVAILABILITY STUDIES AND BUILDING RATES

Land availability studies have become an established part of the planning system. While successive governments issued advice to local authorities stressing the need to ensure the genuine "availability" of land for private housing development in the 1970's, the importance of this has been emphasised post-1979, in Circulars 9/80 and 15/84, and Planning Policy Guidance Note PPG3, issued in 1988.

Circular 9/80 defined "availability" as meaning that:

"sites must not only be free, or easily freed, from planning, physical and ownership constraints, but must also be capable of being economically developed, be in areas where potential house buyers are prepared to live, and be suitable for the wide range of housing types which the housing market now demands."<sup>47</sup>

Circular 15/84 subsequently amended the definition significantly by replacing the reference to areas where potential purchasers are "prepared to live" to those where they "want to live".<sup>48</sup> Important issues have arisen in the interpretation of the definition, and these have been debated widely both in the context of the studies themselves, and in the context of individual planning applications, since the Secretary of State will regard their findings as a material consideration.<sup>49</sup>

The studies are seen as a way of bringing together house-builders' assessments of demand and the development potential of specific sites with the objectives of local planning authorities.<sup>50</sup> Powers exist for the Secretary of State to direct authorities to co-operate with builders' representatives in joint working, although the absence of active builder involvement does not remove an authority's obligation to consider land availability. Circular 15/84 states that:

"Local authorities should aim to ensure that at all times land is or will become available within the next 5 years which can be developed (or is being developed) within that period and which in total provides at least 5 years' supply in terms of the general scale and location of development provided for in approved structure and adopted local plans. Within this context the aim should always be at least 2 years' supply available on which development can start straight away."<sup>51</sup>

Circular 9/80 made reference to the method of calculating housing land supply requirements used in an early study of land availability in Greater Manchester.<sup>52</sup> Circular 15/84 formally recommended that this method - the "residual method" - should be adopted, so as to maintain comparability between areas.<sup>53</sup> The method involves the following calculation:

$$LSR = \frac{DP - COM}{DUR - E} \times 5$$

- where LSR = 5 years' land supply requirement (expressed in dwellings)

DP = dwelling provision in plan policy

COM = number of dwelling completions since base date of plan policy

DUR = duration of plan policy in years

E = time elapsed since base date of plan policy (expressed in years)

The capacity of sites identified as "available", including, inter alia, dwellings under construction, is then assessed against the land supply requirement. Special provision is made for cases in which the residual time period (DUR - E) is less than five years.

Various issues arise in the use of the method. Firstly, there is the question of spatial definition. Circular 15/84 indicated that the calculations should be undertaken for administrative district areas.<sup>54</sup> As we noted earlier however, these may differ from housing market areas. Furthermore, while present government advice is that Structure Plan policies should be compatible with district boundaries, the policies of earlier plans may relate to alternative configurations - travel-to-work areas for example.

Existing policies may be expressed in terms of housing land rather than numbers of dwellings : calculating the residual land supply requirement as a dwelling figure rather than as a land figure implicitly leads to a reconsideration of the density assumptions on which such policies are based. In addition local authorities may include phasing policies in their plans, and these will complicate the application of the formula.

The residual method may be regarded as overly mechanistic, particularly where the observed average completion rate differs substantially from that implied by plan policy. If past annual completion rates are extremely low in comparison with the policy, then the residual requirement may be unrealistically high. In such a situation an authority may be unwilling to identify enough land to meet the requirement, since only a small proportion may be taken up, leading to what it regards as an unnecessarily dispersed pattern of development. However if the authority fails to identify sufficient land, then an individual builder may claim this as a material consideration in applying for planning permission on a non-identified site.

In such a situation the builder may argue that those sites which have been identified by the authority are not marketable. On the other hand the motivation for the application (and, if rejected, a subsequent appeal) may stem from other reasons. For example, it may simply be that the sites which the authority has identified are owned by other builders. Alternatively, the applicant may seek to benefit from the increase in land value which would ensue from the

establishment of the principle of housing on the site. In these cases then, it may be argued that potential consumers would be indifferent between housing built on the site and housing built on land already identified, and that the release of the site could not be justified from a demand perspective.

The drafts of Circulars 14/84 and 15/84 were published simultaneously. The former<sup>55</sup> was widely regarded as curtailing and downgrading the importance of Green Belt policies and provoked substantial comment from local authorities and a plethora of interest groups.

Commentators have suggested that the concern regarding Circular 14/84 served to divert attention away from the technical aspects of the residual method, despite problems in its application having already emerged.<sup>56</sup> These problems repeatedly surfaced in a number of northern districts experiencing relatively low rates of completion - notably in Wigan<sup>57</sup> - and PPG3 has since advised that land supply requirements could be calculated from extrapolated completion rates in such circumstances.<sup>58</sup>

Cuddy and Hollingsworth acknowledge that builders' greatest concern lies in ensuring that there is sufficient land available for development in the short and medium term.<sup>59</sup> However demand will fluctuate over a plan period in response to various factors which the residual method fails to acknowledge. Thus Cuddy and Hollingsworth recommend that the amount of land identified as "available" should be tested against a range of possible demand scenarios. How such scenarios are translated into alternative five years' land supply requirement figures is, of course, much more problematical.

While the residual method may give an unrealistically high land supply requirement if applied in the context of completion rates which are extremely low in comparison with plan policy, the reverse situation may also arise. That is to say, relatively high completion rates will lead to a relatively low land supply requirement. Disagreements have therefore emerged between participants in joint studies regarding not only the adequacy of specific sites but also the validity of the

existing policies which provide the base figures. Although the evaluation of these policies is not a prescribed function of the studies they provide a forum in this subject can be debated. Indeed commentators have observed that in practice builders' representatives have often begun studies by tabling alternative figures.<sup>60</sup> Thus while the studies themselves are concerned with the interpretation and implementation of policy - rather than being policy-determining - builders are afforded a platform on which to argue that the assumptions on which the policies are based are invalid, and to press for their review.

Writing to Coopers and Lybrand on behalf of the House-Builders' Federation, Blincoe states that:

"The most important planning indicator that the Federation uses ... is to compare the actual rate of completion over a planned area or a particular part of a planned area with the structure plan allocations giving a simple and powerful illustration that a structure plan is making inadequate provision in areas where people want to live. This is perhaps the most enduring of all indicators."<sup>61</sup>

Of course the number of completions may actually exceed the Structure Plan housing provision if builders submit applications which do not specifically contradict the other policies in the plan. Indeed Blincoe suggests elsewhere that forward planning is becoming increasingly marginal as development occurs in spite of rather than because of plan policies.<sup>62</sup> Thus on the one hand if the scale of provision made in plans is inadequate then local authorities may find themselves less able to control the locations in which development occurs. On the other hand this argument is circular, since builders may themselves be liable to dispute the distribution of an increased housing provision as proposed in a plan. Moreover, the House-Builders' Federation's view that demand should be expressed as a range rather than as a single figure<sup>63</sup> has further implications. If this view is accepted then forward planning can only be redeemed by increased flexibility and more frequent reviews of policy, which in turn may contradict established notions of what "forward planning" means.

These comments notwithstanding, builders (and indeed local authorities) may attempt to assess housing requirements over a plan period by multiplying the number of years in this period by an observed average annual building rate. However a number of problems emerge in this approach. Firstly, if building rates vary in past years then it is axiomatic that the value of the average rate will depend on the period on which it is based. Secondly, past building rates will reflect past factors influencing demand - and supply - which may not remain constant in the future. Thirdly, and allied to this, past building rates may have been constrained by past policies. Given these limitations we may take the view that building rates are used in this way for the pragmatic reason that unlike the other indicators they are readily amenable to quantification.

#### 4.7 CONCLUSIONS

In this chapter we have concentrated on discussing and evaluating Coopers and Lybrand's five recommended indicators. Each are prone to ambiguities and uncertainties, and, when studied in conjunction, may send out contradictory signals.

Many planning authorities monitor house price data. However house price behaviour is influenced both by changes in demand and changes in supply. Coopers and Lybrand's price indicator is supposed to relate to excess demand. There is a problem in terminology here, since this and other terms may be interpreted and used in different ways. It would be more appropriate to propose that an unusually high price rise may be indicative of an increase in demand in a situation in which supply is relatively inelastic.

There is a problem in establishing what "planning for housing demand" actually means since observed house prices and consumer behaviour will themselves reflect existing planning policies, inter alia. However there is also a problem in identifying what price changes have actually occurred. Dwellings are not homogenous and relying on an "average house price" in undertaking analysis may give particularly misleading results. Disaggregation on the other hand may raise problems of sample size, especially at the local housing market area level.

Determining housing market areas is itself problematical. Given the planning system's emphasis on matters of land-use and spatial distribution, a single tier approach tends to be adopted, with boundaries defined with reference to settlement types.

Coopers and Lybrand's report to the DoE gave little or no attention to such factors as employment, incomes, wealth, and other demand function factors. In this chapter we discussed the affordability ratios regularly analysed at broad spatial scales and published in the journal of the House-Builders' Federation. The price:income ratio is the most commonly used of these indicators, and has been used by planning authorities to highlight the difficulties faced by particular groups in seeking to purchase a dwelling.

Information connected with planning applications can be analysed in a variety of ways and may relate to demand as perceived by builders. There are difficulties in establishing how Coopers and Lybrand's "planning indicator" is supposed to work and what it is supposed to show. The indicator will be influenced by both demand and supply factors (including both planning policy and non-policy related influences). In fact the indicator could be interpreted in so many different ways that there would be little benefit derived from its application. This is the least satisfactory of the recommended indicators.

We examined the usefulness of indicators and "soft information" provided by estate agents and builders. Coopers and Lybrand's "migration indicator" and "estate agents' indicator" are both based on the number of applicants registered with estate agents. We proposed and discussed a variant of the "migration indicator". Arguably this represents the most useful of Coopers and Lybrand's recommended indicators since it could (in modified form) be readily integrated with "demographic" assessments of housing requirements.

A number of weaknesses were identified in the use of estate agents' registration data to indicate demand. These principally concern whether applicants are expressing a "genuine" interest and whether other prospective house-buyers will actually register. Integrating the information with "demographic" forecasts raises the ever-present issue of whether future patterns will reflect those presently observed.

Coopers and Lybrand's "builders' indicator" will respond to changes in demand and supply. Builders may stimulate changes in quantity demanded by cutting prices and increasing marketing, and the usefulness of the indicator has been questioned in practice.

Land availability studies were considered and key points identified and discussed. The residual method of calculating land supply requirements and the relationship with development plan policies were examined. Past building rates reflect the interaction between supply and demand. Since they relate to actual numbers of new dwellings they can be used to check the validity of existing policies or newly proposed "demographic" forecasts. However using building rates in this way involves the assumption that demand (and supply) factors will retain the same influence in the future as they did in the past. This, of course, is open to question.

The use of "soft information" depends on the willingness of actors in the housing market to co-operate and raises questions of representation. Land availability studies offer a point of contact between builders and planners and Coopers and Lybrand recommend that housing market studies should be conducted by panels comprising these and estate agents. This raises important issues concerning the relationship between survey work and policy formulation, and the relative emphasis to be placed on demand as just one of a range of planning considerations.

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5. PLANNING FOR HOUSING IN NOTTINGHAMSHIRE : THE STRATEGY  
AND IMPLEMENTATION OF THE 1980 STRUCTURE PLAN

5.1 INTRODUCTION

The Nottinghamshire Structure Plan, approved by the Secretary of State in July 1980, represented the outcome of survey and policy work undertaken in the mid-1970's, modified in the light of consultation exercises and recommendations made following an Examination in Public in 1979. The plan set out the county's development strategy and policies for the 1976-96 period (mid-year to mid-year).

Our first area of study concerns the methods and assumptions underpinning the housing provisions of the plan. We proceed by discussing the plan's implementation, considering each of the county's eight districts in turn. We adopt a chronological approach, examining the relationship between Local and Structure Plan policies, identifying areas of consensus and dispute, and commenting on site proposals of particular interest. We discuss the extent to which the Structure Plan policies have been realised, and examine the responses of county and district councils where the assumptions have proved to be invalid.

Planning is a process. Past events influence future policies, and in Chapter Six we shall have the opportunity to consider in more detail the trends of the 1980's as part of our study of the review of the Structure Plan. Of course, planning in Nottinghamshire did not begin with the Structure Plan. The County Development Plan, submitted to the Minister for Housing and Local Government in 1952 and approved in 1959, was the first plan to be prepared under the 1947 Town and Country Planning Act.<sup>1</sup> Provision was made for a series of Town Maps relating to various settlements in the county, some of which were incorporated within the approved document, while others were prepared and submitted to the Minister for approval in the 1960's.

The County Development Plan provided the statutory basis for planning and was supplemented by a series of non-statutory documents prepared

in the late 1960's and early 1970's. These included town centre studies, redevelopment studies, and rural policy documents - including the Plan for Rural Nottinghamshire. Whilst there existed no comprehensive statement of regional policy, a further context for the Structure Plan was provided by a series of reports produced by the East Midlands Economic Planning Council.<sup>2</sup>

Of more direct significance was the 1969 Nottinghamshire and Derbyshire Sub-Regional Study, which had been commissioned by the county councils and the city councils of Nottingham and Derby. The Study team used a Lowry model to test thirteen alternative strategies, although only one was selected for detailed investigation and discussion.<sup>3</sup> The Study's main recommendation was the development of a Growth Zone extending from Mansfield in Nottinghamshire to Alfreton in Derbyshire.<sup>4</sup> This strategy provided the basis for planning in the following years and an important input into Structure Plan work, which was authorised to commence in 1973.

## 5.2 HOUSING REQUIREMENTS IN THE NOTTINGHAMSHIRE STRUCTURE PLAN

Before we discuss the strategy and forecasts of the Structure Plan it is necessary to consider the way in which the county was sub-divided for the purposes of analysis and policy formulation. The approach involved the definition of three "Systems", differentiated by such characteristics as settlement pattern and socio-economic structure, and nine "Strategy Zones".<sup>5</sup> The Greater Nottingham and Hinterland System centres on the conurbation of Greater Nottingham and includes over half the county's population. The Mining System consists of those areas with a high dependency on coal-mining as a source of employment in the north-west of the county. The Rural System comprises the remaining areas to the east.

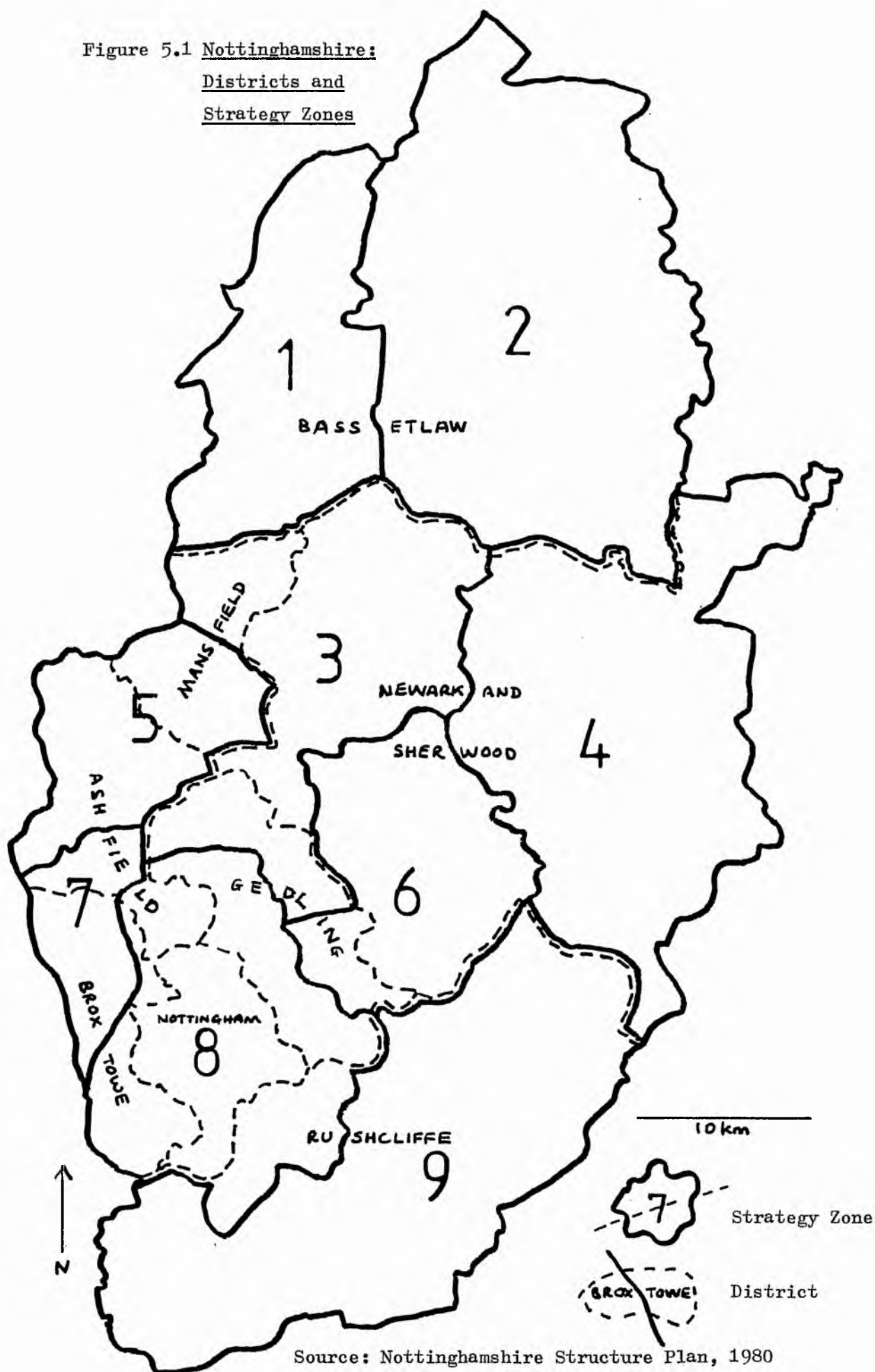
Table 5.1 lists the Strategy Zones and indicates the Systems to which they relate, while Figure 5.1 and Table 5.2 indicate the relationship between the Zones and the eight administrative districts in the county. Nottingham, Rushcliffe, Broxtowe and Gedling fall largely within the Zones of the Greater Nottingham and Hinterland System

(Zones 6, 7, 8, 9). The districts of Mansfield and Ashfield fall largely within Zone 5 of the Mining System. The districts of Bassetlaw and Newark & Sherwood are much larger. Bassetlaw's area is divided between the Mining and Rural Systems and comprises Zones 1 and 2, whilst Newark & Sherwood's is divided between all three Systems and includes Zone 4 and parts of Zones 3 and 6.

Table 5.1 Systems and Strategy Zones

Systems:	Strategy Zones:
Greater Nottingham and Hinterland	8. Greater Nottingham 9. Rushcliffe 6. Central Nottinghamshire (Commuting) 7. Erewash
Mining	5. Mansfield-Ashfield 3. Central Nottinghamshire (Mining) 1. West Bassetlaw
Rural	2. East Bassetlaw 4. Newark

Figure 5.1 Nottinghamshire:  
Districts and  
Strategy Zones



Source: Nottinghamshire Structure Plan, 1980

Table 5.2 Districts and Strategy Zones

Districts:	Strategy Zones:
Ashfield	Part of Zone 5 Part of Zone 7 Part of Zone 8
Bassetlaw	All of Zone 1 All of Zone 2
Broxtowe	Part of Zone 7 Part of Zone 8
Gedling	Part of Zone 3 Part of Zone 6 Part of Zone 8
Mansfield	Part of Zone 3 Part of Zone 5
Newark & Sherwood	Part of Zone 3 Part of Zone 4 Part of Zone 6
Nottingham	Part of Zone 8
Rushcliffe	Part of Zone 8 All of Zone 9

## Housing Requirements of the Natural Increase Population

The 1980 Structure Plan and earlier drafts adopted what was essentially a two-stage approach to assessing housing requirements. The first stage involved a forecast of requirements arising from the existing population only. A cohort survival model was used in projecting the natural increase population, on the grounds that this had become accepted as the standard projection method,<sup>6</sup> and because it was seen as fulfilling the criteria that a model should:

- (i) simulate the nature of population change as accurately as possible;
- (ii) provide details of the age/sex structure;
- (iii) separate out natural change and migration components;
- (iv) indicate the effects of variant assumptions;
- (v) be sufficiently flexible to adapt.<sup>7</sup>

Projections were made for "District Parts of Zones", these being the "building blocks" from which projections for the districts and the Strategy Zones could be derived. The base was provided by the 1971 census "usually resident" population, controlled to the OPCS Mid-Year Estimates for the year. Observed rates for the components of population change (including migration) were applied to 1976, and projections to 1996 were made using the fertility and mortality rates used in the OPCS national projections, adjusted by applying local correction factors.<sup>8</sup>

Household projections were made by applying headship rates derived from the DoE's projections for the county, having first made the standard deduction for the "non-domestic" population, this element being assumed constant.<sup>9</sup> Here again, the standard assumption was made that all concealed married couple families and a quarter of one-person households projected ex ante as sharing a dwelling would require separate accommodation.<sup>10</sup> That is to say:

$$PH = CH + CONMC - \frac{3}{4} OPHS$$

- where PH = potential households

CONMC = concealed married couple families

OPHS = one-person households sharing a dwelling

We noted in Chapter Three that the households assumed willing to share a dwelling would themselves require accommodation. The Structure Plan assumed an occupancy rate of three for these households and adjusted the formula as follows:

$$PH = CH + CONMC - \frac{3}{4} OPHS + \frac{1}{3} \left( \frac{3}{4} OPHS \right)$$

$$= CH + CONMC - \frac{1}{2} OPHS$$

Housing requirements due to household change were assessed as the change in potential households between 1971 and 1996. This meant that a separate adjustment was required to make provision for outstanding housing need in 1971. An estimate of the existing number of concealed married couple families was therefore added on, and a similar adjustment made for households sharing.

It was estimated that 3.5% of the total dwelling stock was vacant in 1971. However the Structure Plan applied a 5% vacancy rate to the forecasts of household change to allow for a continuing increase in household mobility.<sup>11</sup> The net increase in dwellings over the 1971-76 period was then deducted from the forecasts of housing requirements to bring them into line with the plan base year, and an allowance was made for anticipated losses to the existing stock. This largely comprised an assessment of future clearance based on information supplied by the district planning authorities, and included likely losses due to road schemes and net change due to conversions.<sup>12</sup>

## Migration Assumptions and the Structure Plan Strategy

One of the main criticisms of the 1969 Sub-Regional Study had been its failure to consider a range of alternative development strategies.<sup>13</sup> Accordingly, the formulation of the Structure Plan strategy involved a consideration of sixteen preliminary options from which a short-list of five policy themes was drawn up for evaluation (Table 5.3).

Table 5.3 Alternative Policy Themes

1. Growth emphasis in the Greater Nottingham and Hinterland System:  
(a) concentration in Zone 8 (Greater Nottingham Zone);  
(b) dispersal.
2. Growth emphasis in the Mining System:  
(a) concentration in Zone 5 (Mansfield-Ashfield Zone);  
(b) dispersal.
3. Growth emphasis in the Mining and Rural Systems.
4. Growth distribution on the basis of a projection of the 1961-71 trend.
5. Growth emphasis in Zones 8 and 5 (Greater Nottingham and Mansfield-Ashfield Zones).

Writing in 1973, Cowling and Steeley referred to the commitment of the commissioning authorities to build on the Sub-Regional Study, and their desire to adopt a co-ordinated approach.<sup>14</sup> However Nottingham City Council had been concerned that the Study had sought to direct growth north, away from the city, and the Department of Environment had informally expressed a similar concern.<sup>15</sup> Housing and employment problems contributed to the city council's releasing more land for development,<sup>16</sup> and in July 1975 the county council revised its 1974 Interim Statement of Planning Policy. The revised statement continued to emphasise employment promotion in Zone 5 (Mansfield-Ashfield) but adopted a less restrictive approach to development in the Nottingham conurbation.<sup>17</sup>

Survey work undertaken for the Structure Plan indicated that the assumption that industry could be directed away from Nottingham towards Mansfield-Ashfield had proved to be invalid.<sup>18</sup> Moreover the scale of migration between these areas was small and the county concluded from interview evidence<sup>19</sup> that residents in the city had little desire to move north.

The approved Structure Plan stated that:

"It is clear that the future availability of jobs in the County is the single most important factor in determining both the scale and the location of future development."<sup>20</sup>

Independent projections of labour "demand" (need) were made using the simple extrapolation approach, with a separate allowance made for the anticipated effects of Intermediate Area Status applicable in certain parts of the county.<sup>21</sup> Annual growth rates for each of 24 employment categories based largely on the Standard Industrial Classification system used by the Department of Employment were applied to the number of jobs in each Strategy Zone in 1974. These rates were derived from the Department of Employment's national projections, adjusted to allow for particular local conditions.<sup>22</sup>

Intermediate Area Status had been granted to parts of the north of the county in 1969 and 1972 and conferred a number of benefits. These included a relaxation of the need to acquire Industrial Development Certificates (then necessary for such development), government grants to industrialists for new buildings, removals, and plant, and grants for infrastructure development.<sup>23</sup> Judgments were made about likely additional employment resulting from these benefits.

The labour "demand" projections were compared with projections of labour supply. These were made by applying national sex-specific economic activity rates (adjusted by observed local/national differentials) to produce provisional estimates of the economically active population in each Zone. In essence, the procedure was then to apply a 4.5% unemployment rate based on the "target" of the Chancellor of the Exchequer, and to make a further deduction for mineworkers expected to retire early.<sup>24</sup>

Reconciling the forecasts was an iterative process involving various adjustments.<sup>25</sup> Thus the projected decline in agricultural employment was amended to allow for the development of farm land. The growth

rate forecasts were based on national forecasts : further adjustments were therefore made to allow for differences in the "basic"/"non-basic" split in employment at local level. Adjustments were also made to account for the effects of local industrial promotional policies, and the availability of labour in areas in which there existed residential commitments (permissions and outstanding land allocations in plans).

The technical documentation accompanying the Structure Plan implies a broad aim (not explicitly stated) of stabilising inter-Zone commuting at observed 1971 levels. However it was acknowledged that some changes in commuting would occur, particularly between the Zones of the Greater Nottingham and Hinterland System.<sup>26</sup> Indeed, here, the distribution of population was determined by a range of factors besides employment (-discussed below). Nevertheless it must be emphasised that migration for the System as a whole and for other Strategy Zones was essentially assumed to be employment-led.

"The 'demand' projections of employment...  
were a major determinant of Structure Plan  
policies and the amount of population  
growth finally incorporated in the Structure Plan."<sup>27</sup>

The preferred strategy was therefore one of growth emphasis in Zones 8 and 5, the Greater Nottingham and Mansfield-Ashfield Zones. The migration assumptions in the approved Structure Plan are shown in Table 5.4. We see clearly that despite the shift in strategy, Mansfield-Ashfield was expected to experience considerable net in-migration, while Greater Nottingham (and indeed the Greater Nottingham and Hinterland System as a whole) was expected to experience considerable net out-migration. The implicit assumption, then, is that despite an acknowledged preference of city residents to remain in the area, the county council expected them to move as employment opportunities became available elsewhere.

Table 5.4 Migration Assumptions (Net Migrants per annum)

Strategy Zone:

1. West Bassetlaw	+315
2. East Bassetlaw	+ 25
3. Central Nottinghamshire (Mining)	-330
4. Newark	- 20
5. Mansfield-Ashfield	+620
6. Central Nottinghamshire (Commuting)	+ 5
7. Erewash	+ 75
8. Greater Nottingham	-605
9. Rushcliffe	- 60
County	+ 25

Source: Nottinghamshire Structure Plan<sup>28</sup>

#### Housing Land Policies in the Structure Plan

The net migration assumptions were converted into housing requirements by applying a hypothetical "average net migrant household size", based on the DoE's projected headship rates.<sup>29</sup> The 5% vacancy rate was applied to the resulting figures, and total housing requirements due to the effects of natural change, migration, and losses to the dwelling stock were calculated.

In formulating policy the relative merits of concentrating development in the built-up areas and dispersing it across a wider area were considered. The factors considered were broadly the same in each part of the county, and are summarised in Table 5.5.

Table 5.5 Relative Merits of Concentration and Dispersal

In favour of concentration:

- economies of scale;
- convenience arising from proximity between different activities;
- wider choice of jobs, shopping, recreation, available to residents in urban areas;
- wider choice of labour and services available to employers in urban areas.

In favour of dispersal:

- more varied and spacious surroundings;
- easy access to countryside;
- less congestion, pollution and noise;
- a more visually attractive environment.

The preferred strategy broadly favoured the concentration of residential development in the larger settlements, with a presumption against new housing elsewhere.<sup>30</sup> (As we shall see later, the degree to which "wholesale" concentration could be achieved was influenced by the scale and location of existing commitments). Within this framework development would also be considered on small infill sites in villages, provided that this did not have a detrimental effect on their character.

It is within this context that the proposals relating to the Greater Nottingham and Hinterland System must be examined. The Zones of this System were considered together due to the influence exerted by Nottingham itself. Here, the strategy of concentration in and around the conurbation was pursued, although account was taken of the desirability of safeguarding open space in inner Nottingham. Particular emphasis was given to exploiting the opportunities for economic growth, maximising accessibility, protecting good agricultural land, countryside and the identity of distinct settlements, minimising financial costs, and accounting for uncertainties regarding future employment.<sup>31</sup>

A Sketch Plan Green Belt for Nottingham had been approved by the county council in 1956 and modified in 1957, 1962, and 1965. We shall see later in the chapter that the Green Belt would have a considerable influence on subsequent district council policies and development. However we should note that it had existed only as a non-statutory policy, which the Structure Plan itself proposed to strengthen by making provision for a statutory Green Belt Local Plan. Prior to statutory designation the Sketch Plan Green Belt would act as a guide for development control purposes "except where this conflicts with other policies and proposals stated in the Structure Plan".<sup>32</sup> The Green Belt and the proposed development distribution were therefore two integral and mutually supporting elements in the overall strategy for the System.

Policies in the Structure Plan were expressed not as housing requirements but as the amount of land required in each Strategy Zone. The first step in the conversion involved deducting from the total

housing requirement those dwellings with permission at the base date of mid-1976. The land required for dwellings not with permission was calculated by applying net residential density assumptions (making provision for dwellings with gardens, incidental open space, and half the width of surrounding roads). These assumptions were based upon densities in permissions which had subsequently been granted in the late 1970's.<sup>33</sup> The housing land policies were derived by adding the amount of land with permission in 1976 to the amount of additional land required.

The unapproved plan had proposed a policy that permission should not be granted for housing at a net density of less than 80 bedspaces per hectare, in order to promote the efficient use of land and infrastructure.<sup>34</sup> At Examination in Public however the expression of densities in this form was claimed to be inappropriate, with some district councils suggesting minimum densities could be specified in Local Plans and others suggesting they should not be specified at all.<sup>35</sup> The policy was subsequently reworded to allow for local discretion, while encouraging densities as high as compatible with the characteristics of particular sites and their surroundings.<sup>36</sup>

We have already made reference to some of the implications of expressing policies in terms of land rather than housing in our discussion of land availability studies in Chapter Four. We also make the point here that not all permissions outstanding in 1976 would necessarily be implemented, and the Structure Plan emphasised that should they expire they would not necessarily be renewed.<sup>37</sup> This would enable the distribution of development to be brought more into line with the plan's strategy. It should be noted however that the broad Strategy Zone policies do include the amount of land with permission in 1976 : the assumption then is that the densities applicable on sites where permission lapsed would be applicable elsewhere.

Table 5.6 summarises the housing land policies of each Strategy Zone, the corresponding housing requirements, and the density assumptions applied to dwellings without planning permission.

Table 5.6 Housing Requirements and Land Policies

Strategy Zone:	Land (hectares)	Dwellings	Density (dwellings per hectare)
1. West Bassetlaw	240	7100	30
2. East Bassetlaw	95	2500	30
3. Central Notts (Mining)	120	2900	23
4. Newark	125	2950	23
5. Mansfield- Ashfield	510	17300	34
6. Central Notts (Commuting)	75	1400	23
7. Erewash	95	3050	34
8. Greater Nottm.	835(a)	33900(b)	35
9. Rushcliffe	140	3500	30
County Total	2235	74500	-

(a) excludes land on redevelopment sites for 4,350 dwellings

(b) includes dwellings referred to in (a)

Source: Nottinghamshire Structure Plan<sup>38</sup>

Growth is emphasised in Zone 8 (Greater Nottingham) and Zone 5 (Mansfield-Ashfield). Structure Plan policies for these Zones indicated how different parts would contribute to the overall provision. The distributions were made in accordance with the principles discussed above and are shown in Tables 5.7 and 5.8.

Table 5.7 Housing Land Policies in Zone 8  
(Greater Nottingham)

	Housing Land (hectares)
Central Area (City of Nottingham)	5
Inner Area (City of Nottingham)	45
Outer Area:	
City of Nottingham part	180
Gedling Borough part	160
Rushcliffe Borough part	190
Broxtowe Borough part	190
Ashfield District part	65
Zone Total	835

Source : Nottinghamshire Structure Plan<sup>39</sup>

Table 5.8 Housing Land Policies in Zone 5 (Mansfield-Ashfield)

	Housing Land (hectares)
Mansfield District part:	
a) Eastern	180
b) Northern	35
c) Central and Southern	45
d) Western	20
Ashfield District part:	
e) Sutton, Kirkby, Huthwaite and Fulwood	205
f) Remainder of Ashfield part	25
Zone Total	510

Source : Nottinghamshire Structure Plan<sup>40</sup>

### 5.3 PLANNING IN THE CITY OF NOTTINGHAM

The area covered by the City of Nottingham lies within the Greater Nottingham conurbation and was therefore already largely built-up at the time of the Structure Plan's preparation. This was taken into account in the plan, which made provision for 230 hectares of housing land - 8050 dwellings at a density of 35 dwellings per hectare - largely on the periphery of the city (Tables 5.6 and 5.7). What is the relationship between the Structure Plan housing land provision and the way in which the city council has exercised its various planning functions? What has been the city's attitude towards new housing development? What development has taken place, and how has this influenced plan-making at the local level?

The limited provision for housing land in the central and inner areas of Nottingham in the Structure Plan was itself based upon information about the amount of suitable vacant land provided by the city planning authority. This is not to say that the city council was opposed to housing development. On the contrary, Local Plans prepared in the 1970's and covering areas of the inner city set out the aim of minimising population loss. Both the Basford, Forest Fields and Radford District Plan of 1976 (later statutorily adopted by the council), and the Lenton District Plan of 1980, stated a general presumption in favour of housing development regardless of whether the land in question had been specifically allocated for this purpose. Both plans also proposed that development should take place at the maximum density compatible with the local environment.<sup>41</sup> The same concerns were a theme of a third inner city plan - the Sneinton District Plan of 1978.<sup>42</sup>

Areas not covered by these plans were subject to general guidance laid out in the city's Statement of Planning Policy, a document published in 1980 and revised in 1983 and 1984. However it was not until the mid-1980's that a comprehensive approach to Local Plan coverage was developed. This involved two plans, Centreplan, covering the city's central area and statutorily adopted in 1984, and the City of Nottingham Local Plan, prepared more recently and dealing with the remaining area. The chief concern of Centreplan is with the commercial activities associated with the central business district and no specific sites were allocated for housing. Nevertheless the plan shares the general presumption of the inner city plans that the provision of new dwellings and an increase in the residential population would be beneficial and should be encouraged.<sup>43</sup>

The provisions of the City of Nottingham Local Plan were formulated in the context of the development which had occurred since 1980. In 1984 a land availability study undertaken jointly with the House-Builders' Federation revealed that the average annual building rate in the city had been almost twice that anticipated in the Structure Plan.<sup>44</sup> The remaining number of dwellings required to meet the Structure Plan provision was therefore small, and it was revealed that there was a more than sufficient amount of land available to satisfy the requirement for five years' supply based upon the "residual method" of calculation. Indeed it was further demonstrated that the land available was enough to satisfy five years' supply based upon the extrapolation of past building rates. As a result the study concluded:

"This examination indicates that the approved Structure Plan housing policies no longer provide an adequate basis for meeting the demand for housing in the City ... Both the House-Builders Federation and the City Council consider that the housing policies of the Structure Plan with respect to Nottingham need to be reviewed as soon as possible."<sup>45</sup>

It is readily apparent that the presumption in favour of housing development was not limited to inner city areas but extended throughout the city. Over the following years only a small proportion

of residential planning applications were refused - usually on matters of detail rather than on the basis of an objection to the principle of housing. Thus by the time that the draft City of Nottingham Local Plan was submitted to the county council for consideration in 1987, the number of dwellings already completed or under construction was sufficient to meet the Structure Plan policy.<sup>46</sup>

The draft plan specified a number of sites which would be allocated primarily for housing, together with a global figure comprising land on "identified" sites on which housing remained a possibility. It also noted that other small sites might come forward on which housing could be a suitable land-use. The city planning authority considered itself justified in making these proposals, given the county's intention to review the Structure Plan, and the likelihood that the housing provision would be revised.

In considering the draft plan the county accepted this to be the case, but considered the proposals to be excessive, despite being in line with past building rates and the Structure Plan policy of concentration in the urban area.<sup>47</sup> In response the city council made a small reduction in its schedule of primary allocations and omitted from the plan its quantification of land on "identified" sites.<sup>48</sup> Given that the existing Structure Plan did not require the development of more land, any allocation, however small, would imply an over-provision. Nevertheless the county accepted the revised plan and certified it as being in conformity with the Structure Plan in June 1988,<sup>49</sup> thus allowing the city council to proceed with the steps involved in statutory adoption.

The issues are not clear-cut however. Whilst welcoming new housing as an aid to regeneration, the city has become increasingly concerned regarding its capacity for accommodating future development. Its officers had sought to secure the identification of more land for housing in neighbouring areas through discussions conducted in the District Planning Officers' Forum.<sup>50</sup> In this way, it had been hoped that the pressure could be alleviated, whilst the city would still benefit from development undertaken elsewhere in the conurbation. However the different attitudes to development in neighbouring

authorities led the city to the view that the necessary strategic framework could only be provided by a review of the Structure Plan. We shall consider the interplay of interests in establishing this revised framework in Chapter Six.

#### 5.4 PLANNING IN THE BOROUGHS OF RUSHCLIFFE, BROXTOWE AND GEDLING

The boroughs of Rushcliffe, Broxtowe, and Gedling are respectively situated to the south, west and east of Nottingham. The area covered by each includes land within the Greater Nottingham conurbation and subject to the 1980 Structure Plan policies appertaining to Strategy Zone 8, as well as rural and Green Belt land subject to the policies of adjacent Strategy Zones. How have the boroughs sought to carry through the strategic distinctions made in the Structure Plan? How has their relationship with the county council evolved over time? In what ways do their approaches to housing development differ from that of the city? In what respects do these approaches vary from borough to borough and in what ways are they similar?

##### Rushcliffe

Rushcliffe Borough has prepared three Local Plans since the approval of the Structure Plan in 1980. The original proposals for the Wilford Clifton and Ruddington Plan dated from 1975 but were subsequently modified such that the county was able to issue a certificate of conformity with the Structure Plan in 1981.<sup>51</sup> The provisions of the plan were later incorporated within the Central Rushcliffe Local Plan of 1987. This plan covers the urban part of the borough and falls within Structure Plan Zone 8. The South Rushcliffe Local Plan prepared in the early 1980's contains policies relating to the rural area and its boundaries almost exactly coincide with those of Structure Plan Zone 9. This study focuses on these latter two plans.

The formulation of the land allocation policy in the Central Rushcliffe Local Plan involved the borough council in assessing the suitability of land for housing on a site by site basis. Those sites considered suitable were included alongside large sites already having the benefit of planning permission for housing in a schedule of allocations. The total amount of land contained in the schedule, 123

hectares, was less than the Structure Plan provision of 190 hectares for the 1976 to 1996 period (Table 5.7). However it was noted that taking into account smaller sites with permission and sites under construction or developed since 1976 would allow this figure to be reached and in fact exceeded by some 25 hectares.<sup>52</sup>

The county council's response to the borough's proposed policy is noteworthy. Despite the implied over-provision of land the county accepted the borough's view that not all the sites were likely to be developed by 1996 and resolved to certify the plan as being in conformity without amendment.<sup>53</sup> Moreover when the borough subsequently placed the plan on deposit the county lodged a formal objection on the grounds that an additional site should be included in the schedule. The effect of this would of course have been to increase the degree of over-provision.

One possible explanation for this move was that the land was in county council ownership.<sup>54</sup> Indeed, some years earlier a similar situation had arisen : the borough council had resolved to reject a proposal that land in the county's ownership should be allocated for mixed residential and industrial development. In doing this the borough had itself cited the over-provision of land which might occur, whereas the county planning department's report to members stated that the over-provision would be limited and as such acceptable.<sup>55</sup> (In the event the Secretary of State intervened and directed the county council not to pass any resolution on the matter). Whether the county's stance on housing land provision is influenced by ownership considerations is therefore an interesting question.

Approximately half of the area covered by the South Rushcliffe Local Plan is Green Belt land. The Structure Plan stated that the majority of new housing development here would be concentrated in Bingham, one of the larger settlements which had been designated a "growth village" in earlier county council policies,<sup>56</sup> and situated beyond the outer boundary of the Green Belt. The Structure Plan also made provision for the borough to determine allocations of smaller amounts of development within other large settlements.<sup>57</sup>

The strategy proposed in the Structure Plan was largely taken on board in the provisions of the South Rushcliffe Local Plan. The first step involved the identification of larger settlements, which the borough defined as those with a population in excess of 1,500 in 1980.<sup>58</sup> These settlements were then categorised in terms of their satisfying various criteria relating to accessibility, employment and secondary education by public transport, the availability of mains drainage, and the level of provision of local shops and services. Having identified the settlements most suited to accommodating development, sites were evaluated by reference to criteria of accessibility to local facilities, site characteristics, the impact of development on the local environment and "the need to prevent significant incursions into the Green Belt or loss of agricultural land".<sup>59</sup>

A draft plan was prepared in 1982 for submission to the county council for certification. However before considering the county's response it is necessary to examine the options open to district councils in interpreting the quantified provisions of the 1980 Structure Plan. We have noted that these policies were expressed in terms of housing land rather than dwellings. One approach therefore would be to deduct the amount of land developed since 1976 or with residential planning permission in the base year of a Local Plan from the total Structure Plan provision for the 1976-96 period, and allocate sites to meet the balance. This is the approach which we shall see taken by Broxtowe Borough Council.

An alternative approach, used in Rushcliffe, is to work from the Structure Plan housing provision from which the land requirement was originally derived. This approach involves discounting the number of dwellings already built or with planning permission, rather than the amount of land. Having done this the borough converts the outstanding housing requirement back into a land requirement.

The choice of method used does have implications for the amount of land subsequently allocated. Consider for example a scenario in which development takes place at a lower density than that envisaged by the Structure Plan. Discounting the number of dwellings completed would

lead to a higher residual land requirement than discounting the amount of land developed. On the other hand discounting the amount of land developed could lead to inadequate provision being made for the amount of housing required.

Bearing in mind that the 1980 Structure Plan policies were expressed in terms of land provision one might expect the county council to recognise only that approach which involved the discounting of land. However subsequent government advice has stated that Structure Plan policies relating to densities should give general guidance and not attempt to restrict district authorities,<sup>60</sup> and the county council has accepted Local Plan proposals based on either method.

Nevertheless certain other aspects of the approach used in the South Rushcliffe Local Plan have concerned the county. When the plan was submitted for certification early in 1983 there was no significant issue. Although the county noted that the proposed allocations would be slightly in excess of Structure Plan provision, it was acknowledged that this arose principally from the "rounding-off" of sites. Indeed, in this context the over-provision was considered to be both justified and necessary, so as to provide defensible boundaries to land adjacent to the Green Belt. The plan was certified accordingly.<sup>61</sup>

A Public Local Inquiry was held at the end of 1983, following which the borough proposed to make modifications in the light of the Inspector's recommendations. The concern of the county council at this stage was that although land on small unidentified sites had come forward and been developed since certification, the borough was not intending to reduce its housing land allocations, nor did it make any allowance for any subsequent development which might occur on such sites. Accordingly the county requested that two small land allocations which the Inspector had suggested be re-allocated on different sites should instead be deleted.<sup>62</sup> This request was based on the view that unless an allowance was made for development on unidentified sites the scale of new development in rural Rushcliffe would be prejudicial to the concentration of growth in Greater Nottingham.

In the event the borough chose not to reduce the level of housing land provision in the plan. The scale of development which has occurred in rural Rushcliffe since highlights the implications. The borough has continued to grant permission for housing, partly in response to the philosophy of Inspectors who have made a presumption in favour of development when applications on unidentified sites have gone to appeal.<sup>63</sup> As a result the amount of land developed since 1976 had exceeded the Structure Plan provision by 1988.<sup>64</sup>

### Broxtowe

Broxtowe is much smaller in area than Rushcliffe and here the local council has prepared a single plan covering the whole borough. For Structure Plan purposes however the borough had been divided into two parts, the area to the east of the M1 motorway falling within Zone 8 (Greater Nottingham) and the western area falling within Zone 7 (Erewash). An initial consultative draft of the Broxtowe Local Plan was published in 1982, but by the following year the amount of land developed or subject to planning permission in the Zone 7 area had already exceeded the Structure Plan provision for the 1976-96 period. Ultimately the Local Plan would propose no further allocations in this area, although provision was made to allow for the development of small infill sites.<sup>65</sup>

In terms of housing land provision then, the plan's main concern lay in the allocation of sites to meet the Structure Plan provision for the Broxtowe part of the Greater Nottingham conurbation - 190 hectares (Table 5.7). Having discounted land developed or committed for development since 1976 an allowance was made for future land expected on unidentified infill sites. The assumption was necessarily an arbitrary one and was based upon past rates of infill development, reduced somewhat on the grounds that these past rates might have been inflated by past shortages of large sites.<sup>66</sup> This approach typifies the way in which Broxtowe sought to adhere more closely to the Structure Plan provisions than Rushcliffe. In fact as we shall see, the county council's concern in Broxtowe was that in preparing the

Local Plan the borough was making insufficient provision for new housing development.

Broxtowe provides the opportunity for a detailed study of the conflicts which can arise between a district and county when making provision for housing in areas of development restraint. The county's concern had been apparent since it first gave consideration to the borough's request for certification of the draft plan in 1982. The borough considered that it had allocated sufficient land to meet the Structure Plan provision and envisaged that a particular area of land - the Sellers Wood site - would be designated as Green Belt. However the county refused to certify the plan on the basis that the practicality of developing some of the proposed sites was uncertain.<sup>67</sup> When the county resolved to replace the Sketch Plan Green Belt with the Nottinghamshire Green Belt Local Plan, the land at Sellers Wood was excluded from its provisions.<sup>68</sup>

A revised draft plan subsequently prepared by the borough was considered by the county council in the middle of 1983. Again the concern was expressed that it might not prove possible to develop all the proposed sites and that the provision would fall short of the Structure Plan requirement. Of particular note was the uncertainty over whether land then in the ownership of the Ministry of Defence - the Chilwell Ordnance Depot site - would in fact become available for development. The county nevertheless resolved to certify the revised draft, on the basis that the Public Local Inquiry would provide an appropriate forum to consider the issues involved.

Shortly after the county had resolved to make its objections the Ministry of Defence made it known that it was only intending to dispose of part of the land. Accordingly the borough resolved to modify its plan further, allocating other sites for housing, including land within the Green Belt - the Stapleford Road site. The county regarded this as an unacceptable solution and proposed that the Sellers Wood site be allocated instead.<sup>69</sup> Both authorities considered the designation of a Green Belt essential in preventing the

coalescence of settlements, but conflict arose from disagreements about the relative merits of protecting different parcels of land.

The county's case for the allocation of the Sellers Wood site for housing was not made on Green Belt grounds alone however. It also pointed out that objections existed to the development of housing on almost all the sites proposed by the borough. This being the case the county argued that as the size of the Sellers Wood site exceeded that at Stapleford Road, some of these other sites could be deleted without prejudice to meeting the Structure Plan land requirement. In any event, the county now suggested that its original estimate of the level of clearance in the Greater Nottingham conurbation as a whole might have been too low, implying that the Structure Plan provision would itself be inadequate.<sup>70</sup>

The rift between the authorities grew as the borough responded by requesting that the Structure Plan housing land provision for the Broxtowe part of the conurbation should be reduced. This was rejected on the grounds that the strategic provision was determined independently of whether specific sites such as the Ministry of Defence land would be released. As an alternative the borough requested that the Strategy Zone boundary be changed, enabling allocations to be made throughout the plan area, rather than solely in the east. This request was also rejected by the county on the basis that the Strategy Zones were designed to be "sensible planning units" not to be modified in an ad-hoc manner.<sup>71</sup>

Following the Public Local Inquiry in May 1984 the Inspector recommended that the Stapleford Road site be allocated for housing, as had originally been proposed by the borough. This would contribute to a more dispersed housing land provision than had been envisaged by the Structure Plan, although the allocations still fell in the east of the plan area.<sup>72</sup> The Inspector made it clear that no contingency allocation would be appropriate above that required to meet the Structure Plan policy,<sup>73</sup> even though the county had itself considered that the assumptions on which it had been based might be out-dated.

The more restrictive views of the borough therefore prevailed over those of the county, and the Inspector's recommendations were incorporated into the adopted Broxtowe Local Plan of 1985.

### Gedling

Unlike the boroughs of Rushcliffe and Broxtowe, Gedling is subject to the policies of three Structure Plan Strategy Zones. The urban area falls within Zone 8, the Greater Nottingham Zone, for which the Structure Plan had made provision for 160 hectares of housing land over the 1976-96 period (Table 5.7). The rural part of the borough is divided between Zone 3, the Central Nottinghamshire (Mining) Zone, and Zone 6, the Central Nottinghamshire (Commuting) Zone. As we saw in Broxtowe, the way in which Strategy Zone boundaries divide a district area can be a contentious issues. Cases in which Strategy Zones overlap district boundaries also raise issues in terms of the interpretation of Structure Plan policies : the Zone policies do not always quantify the contribution which each district is expected to make to the total land provision.

This is an important point, and the implications can be considered by referring to Gedling's Rural Policy Statement of 1981. This is a non-statutory plan covering the parts of the borough falling within Zones 3 and 6. (The reader may wish to refer back to the map in Figure 5.1 and the Structure Plan provisions set out in Table 5.6, earlier in the chapter). The Structure Plan made provision for 120 hectares of housing development in Zone 3, an area comprising land within the administrative boundaries of Gedling, Newark & Sherwood, and Mansfield, and 75 hectares in Zone 6, which comprises parts of Gedling and Newark & Sherwood. The plan proposed that the Zone 3 provision would be concentrated in the settlement of Ollerton-Boughton, whilst that of Zone 6 would be met largely in settlements close to Nottingham.<sup>74</sup> This would imply that most of the Zone 3 provision would be met in Newark & Sherwood District (within which Ollerton-Boughton is situated), and most of the Zone 6 provision would be met in Gedling (which is adjacent to the city).

On the basis of these policies Gedling considered that no specific housing proposals were required in the Zone 3 part of the borough, although a small number of sites were in fact identified. In Zone 6 a capacity-led approach was adopted. The borough took the view that identifying the number of sites suitable for housing in its part of the Zone would provide a more realistic approach to calculating housing land provision than working from the Structure Plan figure.<sup>75</sup> The result was that the provision made by the Rural Policy Statement in the Gedling part of Zone 6 fell short of the Structure Plan provision for the Zone as a whole.

This did not imply any conflict with the Structure Plan, as the Rural Policy Statement still provided for the majority of the Zone's development to take place within Gedling. Furthermore the Structure Plan quite properly saw the formulation of detailed housing land allocations as a matter for the district councils. However because the Strategy Zones did not coincide with district boundaries the Structure Plan provisions did not preclude the possibility of conflict between Gedling and neighbouring Newark & Sherwood. The lower the provision made in Gedling, the higher the provision required in Newark & Sherwood, if the Zone 6 Structure Plan provision was to be met.

In fact no conflict arose between the two districts and by the late 1980's the development envisaged in the Structure Plan had taken place. Nevertheless as we shall see in the next chapter the review of the plan would adopt a different geographical basis to the formulation of its policies, enabling the negotiation of district housing provisions to be conducted as an integral part of the Structure Plan process.

Since the publication of the Rural Policy Statement Gedling has been engaged in developing proposals for a new Local Plan covering the whole of its administrative area. Unlike Broxtowe, Gedling has shared the county's view that provision should be made for unforeseen housing requirements which might emerge. However a protracted disagreement was to develop between the officers and members of the county council regarding the implications for the determination of the Green Belt

boundary. Gedling considered that it was preferable to make provision for development on greenfield land rather than rely on the continued utilisation of infill sites within the existing urban area. The borough considered one specific land parcel - the Killisick Lane site - to be particularly suitable for this purpose on the grounds that development here would be less visually obtrusive than elsewhere.<sup>76</sup>

Planners in the county council accepted this view, and recommended to members in 1982 that the site be excluded from the provisions of the Green Belt. However this recommendation was rejected.<sup>77</sup> Following a subsequent inquiry into the Green Belt Local Plan the Inspector recommended that the site should be divided : part of the land should be retained as Green Belt and part excluded. Planners in the county accepted this proposal but again it was resolved to retain the whole site within the Green Belt, principally on the basis of local objections and the views of the local member.<sup>78</sup> Nevertheless following a further period during which Gedling Borough submitted objections to this resolution the officers succeeded in having the decision reversed, and the Inspector's recommendation was accepted in 1986.<sup>79</sup>

A draft of the Gedling Borough Local Plan was published in 1988. By this time 130 hectares of the Structure Plan provision of 160 hectares in the urban part of the borough had been developed. The borough proposed to exceed this provision by scheduling 71 hectares for development including land presently with planning permission and three large sites, including the land at Killisick Lane.<sup>80</sup> The excess provision was made in the knowledge that a review of the Structure Plan was underway, and in 1989 the county certified the proposals as being in conformity without dispute.<sup>81</sup>

## 5.5 PLANNING IN THE DISTRICTS OF ASHFIELD AND MANSFIELD

While we have seen that the Structure Plan zone boundaries do not coincide neatly with those of the administrative districts, Ashfield and Mansfield fall largely within Zone 5 (the Mansfield-Ashfield Zone) and it is to this area that the more recent Local Plans of these districts relate. Although Ashfield District Council had produced a

plan relating to the part of its area falling within Greater Nottingham, this plan predated the approval of the Structure Plan. Accordingly the county council considered that it could not be certified and it exists only as a non-statutory document. The plan - the Hucknall District Plan<sup>82</sup> - was only intended to guide development to 1986, and we shall not consider it in this study.

The strategy of encouraging growth in the Mining System, of which Zone 5 is a part, was based upon the need to diversify employment, an aim thought to be realistic given the benefits conferred by Intermediate Area Status. Intermediate Area Status had predated local authority reorganisation in 1974, but in 1979 the government announced its phased withdrawal, and by 1990 it had been removed from all but a small area in the north-east of the county. Given this context, what approach have Ashfield and Mansfield taken in planning for housing development, and to what extent has development reflected that envisaged in the 1980 Structure Plan?

### Ashfield

The 1980 Structure Plan quantified the contribution which Ashfield and Mansfield would be expected to make to meeting the Zone 5 housing land provision. In addition each district was sub-divided and the level of provision to be made in each area set. In Ashfield this meant distinguishing between the "inner area", comprising the built-up parts, including the towns of Kirkby and Sutton, and the "outer area", comprising the remaining parts. In line with the strategy of concentration the Structure Plan made provision for 205 hectares of housing land in the inner area, and just 25 hectares in the outer area, this being the amount of land with residential planning permission in 1976 (Table 5.8).

The Kirkby-in-Ashfield and Sutton-in-Ashfield Local Plans combine to set out the district's policies for both the inner and outer areas. The Kirkby plan was prepared first, with a base year of 1980, although the survey work involved in identifying sites suitable for housing in both the Kirkby and Sutton parts of the inner area was undertaken at

the same time. The initial stage involved updating the inner area land requirement by discounting land upon which dwellings had been completed since 1976 and land with residential planning permission in 1980. This generated a requirement for 126 hectares to be allocated for the 1980-96 period.<sup>83</sup> The identification of sites involved the application of principles aimed at conserving areas of landscape value and good quality agricultural land, relating sites to services and available infrastructure, making use of derelict land, and preventing the coalescence of settlements. The survey work identified a total of 145 hectares with the potential for accommodating housing development in the inner area.<sup>84</sup>

Approximately a third of this land comprised sites in the Kirkby part, and a detailed evaluation led to the allocation of 43 hectares of land for housing in the Kirkby-in-Ashfield Local Plan. The county council did not regard the proposals as contentious, and the plan was certified as being in conformity with the Structure Plan in 1982.<sup>85</sup> It was subsequently adopted by the district as a statutory document in 1984.

The housing land allocations in the Sutton-in-Ashfield Local Plan were formulated in a similar way. The plan assumed a base year of 1986 and discounted land developed in the inner area since 1976, land with permission in 1986, and land allocated in the Kirkby plan and yet to be developed. This generated a requirement for 94 hectares of land to be allocated in the Sutton part of the inner area for the 1986-96 period.<sup>86</sup> A schedule of sites providing for this land was drawn up on the basis of the earlier survey work, and incorporated a substantial amount of land which had already been allocated for housing in the West Nottinghamshire Town Map of 1959.<sup>87</sup>

The reader will note that the combined housing land provision of the two plans - 137 hectares - exceeds that which the district had originally calculated would be required for allocation in 1980. This reflects the expiry of a number of permissions which had been discounted when preparing the Kirkby plan. Indeed, whilst development in and around Nottingham has tended to take place at a much faster

rate than had been envisaged in the 1980 Structure Plan, the rate of house-building which has taken place in the Ashfield part of Zone 5 has been lower than anticipated. The economic growth expected did not take place and the area suffered badly from the effects of the recession of the early 1980's.

The district is aware that housing development can make a contribution to regeneration. Comparing the approach taken to calculating land requirements with that of Broxtowe, in which the chief priority is land conservation, we note that Ashfield does not make an allowance for the possibility of infill development on unidentified sites which might come forward. To do this would of course serve to reduce the amount of land required in the plan allocations.

Moreover there is a subtle difference between the policies of the Kirkby plan, which were formulated before the recession began to bite, and those of the Sutton plan. While both plans state that planning applications for housing on additional infill sites will be considered favourably, the Kirkby plan restricts this provision to land within the inner area. In the Sutton plan the approach is more relaxed, this provision applying to the whole of the plan area.<sup>88</sup>

Nevertheless a problem emerged regarding the extent to which the allocated land was genuinely "available". A considerable amount of this land was owned by the district and county councils and they had not wished to dispose of it. More recently this has ceased to be an issue however. Both councils have sought to sell sites for political reasons (to realise their value) and both have been involved in marketing them.<sup>89</sup>

### Mansfield

We now consider the plans of Mansfield District Council. The Woodhouse Local Plan and Woodhouse Centre Action Area Local Plan were prepared in the late 1970's and early 1980's, and were adopted by the district as statutory plans in 1983. Together they set out policies for the town of Woodhouse, which falls within the northern part of Structure

Plan Strategy Zone 5. The Structure Plan made provision for a total of 35 hectares of housing land in this part of the Zone (Table 5.8) - a relatively small provision on account of the constraints imposed by mining subsidence and the existence of good quality agricultural land.

The district made reference to these constraints in its Local Plans, and stated that it would be inappropriate to make provision for significant new housing development, given the under-provision of supporting facilities and services.<sup>90</sup> Between them the Local Plans proposed 28 hectares for housing, of which 4 hectares would be located within the centre of the town.<sup>91</sup>

Placing this provision in the context of prior commitments is an interesting exercise however. The district acknowledged that in the plans' base year of 1981 there existed land with planning permission for 1,000 dwellings and land allocated in the West Nottinghamshire Town Map capable of accommodating 350 dwellings.<sup>92</sup> This implies prior commitments totalling almost 40 hectares, assuming the density of 34 dwellings per hectare anticipated by the Structure Plan (Table 5.6). Thus despite the statements made in the plans, the take-up of this land would have led to an over-provision compared to the Structure Plan land requirement.

In the event this has not proved to be a relevant issue however. Development rates in the Mansfield part of Zone 5 have generally been lower than the county had anticipated, with recent rates tending to be substantially lower than those occurring during the early years of the Structure Plan period, as shown in Table 5.9. Like Ashfield, Mansfield has suffered from the effects of the recession, and planners in the district acknowledge that inward housing investment is one way in which regeneration can be instigated, although there is as yet no formal strategy for encouraging this.<sup>93</sup>

Table 5.9 Development Rates in the Mansfield part of Zone 5

	Average development rate implied by Structure Plan policies (hect. per annum)	Actual average development rate 1976-87 (hect. per annum)	Actual development rate for year 1986-87 (hectares)
Eastern area	9.00	8.40	4.66
Northern area	1.75	1.27	0.49
Central and Southern area	2.25	0.91	0.79
Western area	1.00	1.01	1.02
Total Mansfield part of zone	14.00	11.59	6.96

Source: Mansfield - Available Land for Residential Development<sup>94</sup>

## 5.6 PLANNING IN THE DISTRICT OF BASSETLAW

Bassetlaw is located in the north of the county and is relatively removed from the influence of the City of Nottingham. The district is large in size and for Structure Plan purposes was divided into two Strategy Zones. Zone 1, West Bassetlaw, contains the town of Worksop and falls within the Mining System, while Zone 2, East Bassetlaw, contains the town of East Retford and falls within the Rural System. We ask again, has the development envisaged by the Structure Plan taken place, and what is the district's attitude towards housing and the implementation of Structure Plan policy? Recently, Bassetlaw has been engaged in preparing a Local Plan for its eastern area. First however we consider its earlier plans and the relationship between the proposals contained therein and those of the Structure Plan.

A draft Local Plan for West Bassetlaw had been published in 1976 and was modified in 1978. The distribution of housing land proposed by the district represented the outcome of an evaluation of eight alternatives, conducted on the basis of four criteria. These comprised the physical suitability of the land for development, the extent and distribution of employment opportunities, the opportunities for locating housing in attractive areas without adverse environmental effects, and accessibility to shops and services.<sup>95</sup> As a result of this exercise a strategy of allocating 95% of the proposed residential growth in and around the existing major settlements was advocated.

This strategy formed the basis for a detailed evaluation of potential sites which resulted in over three-quarters of the growth being allocated to sites in the main settlement of Worksop, and approximately one-seventh being directed to two outlying villages.<sup>96</sup> These villages, Harworth and Bircotes, had been identified as suffering from a range of social, economic and environmental disadvantages, and were the subject of detailed proposals in the Harworth-Bircotes Draft Action Area Plan.<sup>97</sup>

The situation regarding East Bassetlaw was not dissimilar. A draft plan had been published in 1975 and was modified in 1980. Here a hierarchy was established with East Retford the main growth centre, and the remaining settlements being divided into primary growth villages, secondary growth villages, and "group 3" villages. The plans in both parts of the district were to provide non-statutory guidance only, and their more detailed provisions were limited to a time-horizon of 1986. The strategies proposed predated the approval of the Structure Plan in 1980, but they shared the objective of concentration and had been endorsed by the county council in the mid-1970's.<sup>98</sup>

Nevertheless the degree to which a strategy of concentration was tenable was influenced by the earlier policies of the county council. The Plan for Rural Nottinghamshire of 1966 had contributed to a more dispersed pattern of development than was presently being proposed, and in the mid-1970's there remained outstanding allocations outside of the built-up areas.<sup>99</sup> In West Bassetlaw the scale of these allocations was limited and their influence minimal. In East Bassetlaw they were more extensive however, and were incorporated within the provisions of both the 1975 and 1980 Local Plans.<sup>100</sup> Indeed, the provision made for development in the "group 3" tier of villages was exclusively determined by prior allocations and outstanding planning permissions. Thus while the district stated an intention to ensure that the pattern of growth in the east was brought into line with Structure Plan policy, it was acknowledged that the proportion of people resident in the rural parts would remain high in the early 1980's.<sup>101</sup>

The Structure Plan made provision for 240 hectares of housing land in the west of the district and 95 hectares in the east (Table 5.6). However the contrast between the development proposed and that which has actually occurred is dramatic. The average development rate of 8.7 hectares in West Bassetlaw since 1976 is much lower than the 12 hectares per annum implied by the Structure Plan. On the other hand the entire provision in East Bassetlaw had been taken up by 1984, and by March 1987 a further 37 hectares had been developed.<sup>102</sup>

West Bassetlaw suffered from the same economic difficulties experienced in Ashfield and Mansfield. Intermediate Area status was phased out between 1982 and 1984, making the area relatively unattractive to industrialists compared with parts of neighbouring South Yorkshire in which other incentives continue to be available. This is not to say that issues in the identification of housing land did not arise. For example, following the publication of a county council monitoring report in 1982, which provided an early indication that previous expectations had been over-optimistic, the district argued that the Structure Plan provision for the area could be reduced. Given the low rate of development the district saw no purpose in identifying sites to meet the five years' land supply requirement as implied by the "residual method".

The issue came to light when planning applications were submitted in 1986 on two large sites - the Gateford Hill and Gateford Quarry sites. Bassetlaw opposed these applications, principally on the basis that existing employment opportunities were insufficient to support a resulting growth in the population: it was argued that the development should be phased lest it lead to increases in commuting across the county boundary into South Yorkshire.<sup>103</sup> In this the district sought - and received - the county council's support. The county took the view that although both proposals were on land in Worksop, the development at Gateford Hill would be contrary to Structure Plan policy, which incorporated fairly specific guidance regarding its distribution within the town.<sup>104</sup> Both permissions were allowed on appeal.

While Bassetlaw sought to engage the support of the county in arguing its case in the west of the district, a different relationship has been evident with regard to development in the east. Here, despite its earlier stated intention to implement the Structure Plan policy of concentration, the district registered its view in 1982 that further development in the villages should not be constrained. The county's response was that the Structure Plan provisions should not be treated rigidly or inflexibly, and permitted district councils a degree of leeway in interpretation.<sup>105</sup> It is clear that this advice has been readily taken on board by Bassetlaw in its processing of planning applications. Not only has the scale of development considerably exceeded the East Bassetlaw Structure Plan provision, but of the total amount of housing land taken up between 1976 and 1986 some 60% was located outside the environs of East Retford.<sup>106</sup>

Whether the county council had envisaged this degree of leeway in the location of new housing is open to question. However the mid-1980's saw the preparation of a new Local Plan for East Bassetlaw prompted by the need for an up-to-date framework for managing the growth. The principal aim of the housing policies in the rural area was to regulate the provision of land, and to restore the Structure Plan strategy of concentration. Accordingly the greater proportion of the land provision was proposed at East Retford, with smaller amounts in the larger villages.

Nevertheless, despite consistency with the strategy of concentration, the county disputed the scale of housing proposed. The Local Plan proposed 72 hectares of housing land on the assumption that the average annual net in-migration over the 1976-86 period, estimated by the district at 250 persons per annum, would continue to 1996. However while accepting that the Structure Plan assumptions had been unrealistically low, the county planning authority expressed concern that this was excessive, and the district was advised that it would not be possible to certify the plan without modification.<sup>107</sup>

In producing a revised plan the district noted that to provide only for a natural increase in the population would require the revocation

of certain planning permissions, the deletion of outstanding allocations in the 1980 Local Plan, and the refusal of additional proposals for housing development. Such a course of action, it argued, was "clearly untenable".<sup>108</sup> However it did not make any alternative proposals based upon a middle-course migration assumption. Indeed, further work led to an upward revision in housing land provision to just over 80 hectares.<sup>109</sup> This of course made the plan even less likely to receive certification and the district accepted that it would remain as a non-statutory document, at least until the county's review of the Structure Plan, now underway, had been completed.

#### 5.7 PLANNING IN THE DISTRICT OF NEWARK AND SHERWOOD

Finally we consider Newark & Sherwood, the largest district in the county. Until recently the district has been the subject of three non-statutory Local Plans, although a new plan is currently in the process of preparation. In this section we consider the three existing plans: the Newark District Plan of 1976, the Western Area Plan, also of 1976, and the Southern Area Plan of 1983. We ask, how do the housing policies of the various plans relate to those of the county council? We have seen how early county policies have influenced local planning in East Bassetlaw, despite their being contrary to the strategy of the Structure Plan. Does such a relationship apply in Newark & Sherwood? We consider the housing development which has taken place, and comment upon the extent to which the district has been successful in implementing its policies, given their non-statutory status.

The areas served by the Newark District Plan and Western Area Plan fall largely - though not exclusively - within the boundaries of Structure Plan Strategy Zones 4 (Newark) and 3 (Central Notts Mining) respectively. The district considered the planning issues faced in the early and mid-1970's to be such that the formulation of a detailed framework was necessary to guide development in the period prior to the Structure Plan's approval.<sup>110</sup> The time-horizon of the plans was

chosen with this function in mind, and the housing land policies made provision for anticipated requirements in the period to 1986.

In many respects the proposals of these plans were commensurate with the strategy later incorporated in the Structure Plan. The scale of provision was based upon forecasts made by the county council in the context of the emergent preferred strategy, while in distributing the allocations reference was made to the county's stated objective of reducing long-distance commuting.<sup>111</sup> We see then a consensual approach to the distribution of new development. Indeed one of the principal reasons for the preparation of the plans was the ineffectiveness of former policies in concentrating growth in particular areas.<sup>112</sup> These policies, which were contained in the county council's earlier Plan for Rural Nottinghamshire,<sup>113</sup> had been prepared in anticipation of a substantial increase in population which had failed to materialise. Moreover, as in Bassetlaw, former policies had made provision for a more dispersed pattern of development than was later thought appropriate. However while the East Bassetlaw District Plan of 1975 incorporated the earlier housing land allocations, a different approach was taken by Newark & Sherwood. Here, the district, with the endorsement of the county council, deleted all of the allocations upon which planning permission had not been granted.<sup>114</sup>

Nevertheless the legacy of the earlier policies was evidenced in the substantial number of outstanding permissions. This was particularly true in the area covered by the Western Area Plan. Here, over 2,000 dwellings had planning permission in January 1975, with the consequence that only a very limited amount of additional land was required, in a small number of settlements.<sup>115</sup> Indeed it subsequently transpired that permission already existed for two-thirds of the Structure Plan dwelling provision in the corresponding Strategy Zone for the whole of the 1976-96 period.<sup>116</sup> Thus although the Structure Plan saw strong justification for concentrating development in the main settlement (Ollerton-Boughton),<sup>117</sup> existing commitments effectively served to constrain the viability of achieving this.

In the Newark District Plan area the existing number of permissions was found to be insufficient to meet the anticipated requirement to 1986, and the district made provision for the shortfall to be located in the town of Newark. Again we see a consensus between district and county council thinking in the mid-1970's, but again the scope of the Structure Plan policy of encouraging concentration was reduced by outstanding permissions, albeit to a lesser extent.

We now refer to the Southern Area Plan of 1983, which relates to those parts of the district falling within Strategy Zone 6 and situated closest to Nottingham. We have noted that this Zone includes parts of neighbouring Gedling and have observed how the allocations here were determined. The housing provision in the Southern Area Plan was therefore calculated on a residual basis and was again largely concentrated in the main towns and villages.<sup>118</sup>

Finally we consider the development which has actually taken place. Newark & Sherwood's land availability schedules indicate that actual average development rates exceeded those implied in the Structure Plan policies in each Zone.<sup>119</sup> Furthermore the level of development in the southern (Zone 3) and rural (Zone 4) areas had exceeded the total Structure Plan provision by the end of 1989. The district has generally adopted a positive view of the development taking place, and at the start of 1990 there existed sufficient permissions and allocations in each area to enable past building rates to be maintained for at least five years.

The district has largely been successful in implementing the distributional strategy of the Structure Plan. Despite the non-statutory status of its plans only 39 of the 118 planning appeals heard since 1986 have been lost, and only 4 were on sites with a capacity exceeding 10 dwellings.<sup>120</sup> In part this is attributable to the existence of the Nottinghamshire Green Belt Local Plan, which following the various modifications discussed earlier in the chapter was statutorily adopted in 1989.

In the light of increasing development pressure in and around the town of Newark, the district has been engaged in preparing a new plan which will be progressed to statutory adoption. The new plan - the Newark-on-Trent Local Plan - was considered by the county council in mid-1989, some months after the county's own proposals for revising the Structure Plan were published. It is therefore more appropriate to consider the relationship between county and district in this respect in the next chapter.

## 5.8 CONCLUSIONS

Our first area of enquiry in this chapter concerned the formulation of policy in the Structure Plan. The plan strategy differed from that of the earlier Sub-Regional Study by placing emphasis on growth in the area around Nottingham as well as in Mansfield-Ashfield. It was assumed that population growth and housing development in each of the Strategy Zones would be "employment-led" and policies were determined with reference to independent employment projections.

These projections were based on the assumption that past trends in employment would be maintained and that Intermediate Area Status would continue to be applicable in the Mansfield-Ashfield and West Bassetlaw Zones. This has not been the case, and house-building rates in West Bassetlaw in particular have been much lower than had been expected. By contrast house-building rates in other areas, notably in East Bassetlaw and the Greater Nottingham and Hinterland System have been greater than had been anticipated.

We see that a consensus has existed between the county and the Green Belt districts - principally Rushcliffe, Broxtowe and Gedling - regarding the desirability of restricting development in these areas. In Rushcliffe and Broxtowe, statutory Local Plans have been prepared so as to provide a more authoritative basis for dealing with applications for planning permission as they arise. However the need for such plans to be certified as being in conformity with the Structure Plan provides the opportunity for debate and conflict between county and districts. This is fuelled by the intrinsic

sensitivity of the areas in question, combined with the dual interests of the county in setting the strategic housing provision and determining the detailed boundaries of the Green Belt.

We see that the disagreements have varied in nature from district to district. The county's concern regarding the South Rushcliffe Local Plan was that the scale of allocations might lead to the Structure Plan provision being exceeded. Its concern in the case of the Broxtowe Local Plan was that the allocations proposed might be insufficient. We see differences in the way each of the districts interpret and seek to accommodate the Structure Plan provisions, but inconsistencies in the county's response are also evident. Thus in the context of the Broxtowe Local Plan we note the county's suggestion that the Structure Plan provision for the Greater Nottingham and Hinterland System as a whole might have been inadequate, whereas the slightly more flexible approach of Rushcliffe was questioned.

Of course the reason for this lies in the relatively rural nature of the South Rushcliffe Local Plan area, and the Structure Plan's emphasis on urban concentration. Nevertheless Nottingham City Council's proposal to identify further land in its area following the depletion of the Structure Plan provision was not met with enthusiasm on the part of the county. We see then the progressive breakdown of the co-ordinative strategic role of the county as it became apparent that development pressure exceeded the Structure Plan provisions, and as differences in opinion emerged as to whether these should be surpassed.

We must place these disagreements in their proper context. Significant though they are, they are essentially matters of detail, which become pronounced in the consultations which surround the process of Local Plan statutory adoption. Rushcliffe, Broxtowe and Gedling all support the county's Green Belt policy, this policy has been upheld, and, as we shall see in the next chapter, the county continues to favour the concentration of development in urban areas.

When we consider the East Bassetlaw Local Plan we see a different situation. Here both county and district agreed that the plan would exist as a non-statutory document. However this withdrawal from the process of statutory adoption was itself due to the considerable degree of divergence between its proposals and the policies of the existing Structure Plan. Yet the conflicts do not disappear, rather they are latent and unresolved, and highlight the need to establish a revised strategic framework through a review of Structure Plan policy.

We would expect districts beyond the Greater Nottingham and Hinterland System to be less restrictive in their approach than Rushcliffe, Broxtowe and Gedling. We would also expect this to be particularly true of those districts in which economic growth is seen as a priority. This is partly so, although there is no development "free-for-all" in these areas. Whether attitudes to new housing can wholly be described as positive depends on what we mean by the term. We see for example that the East Bassetlaw and Newark-on-Trent plans have been drawn up not to stimulate development as such but to manage the pressures which are expected to arise. Moreover these plans concern areas falling within the Rural System of the Structure Plan. By contrast West Bassetlaw, Mansfield and the western part of Newark & Sherwood - all places in which a concern for economic regeneration has been expressed - all lack comprehensive up-to-date statutory Local Plans.

This is not necessarily to imply criticism of the districts involved : instead it serves to highlight the lack of direct implementational powers at planning authorities' disposal. Had statutory Local Plans been prepared identifying sufficient land to meet the Structure Plan housing provision in West Bassetlaw and Mansfield we might be describing them as naive and unrealistic. Moreover identifying this amount of land could contribute to a dispersed pattern of development if only a limited number of sites were taken up. It was partly for this reason that the "residual method" of calculating land supply requirements in West Bassetlaw was not pursued.

We have seen how early policies of the county have - to a limited extent - influenced Structure Plan policy and the subsequent distribution of development. In 1988, guidance issued by the Department of Environment<sup>121</sup> emphasised the importance of up-to-date Local Plan coverage, and we have noted that various Local Plans prepared recently proposed to surpass the Structure Plan housing provisions. At the same time the county was engaged in reviewing the Structure Plan. In the next chapter we shall therefore consider the ongoing relationship between county and districts, and the way in which the county took account of the changes which took place in the 1980's.

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## 6. CURRENT PRACTICE IN NOTTINGHAMSHIRE AND THE EAST MIDLANDS

### 6.1 INTRODUCTION

The Nottinghamshire Structure Plan of 1980 set out policies guiding the scale and location of housing development in the county in the period to 1996. However the various changes which we discussed in the last chapter, together with the need to roll forward policies to 2001 led to the county council conducting a review of the plan in the late 1980's.

A Structure Plan monitoring report had been published in 1982,<sup>1</sup> and even at this early stage some district councils and other interested parties had commented on the need for a re-assessment of the plan's provisions.<sup>2</sup> The county on the other hand proposed that its policies could be interpreted flexibly, and it was considered inappropriate to begin a review so soon after the plan's approval.<sup>3</sup> However a second monitoring report published in 1985<sup>4</sup> indicated that trends in housing and industrial development had clearly diverged from those envisaged in the plan, and it was accepted that a review should now be initiated.<sup>5</sup>

A Consultative Draft Structure Plan Review was published in January 1989.<sup>6</sup> The Submission Draft containing changes made in the light of representations was published in January 1990<sup>7</sup> and submitted to the Secretary of State for consideration the following month. An Examination in Public was held in June 1990, and the review is expected to be approved in 1991. Given the extent of the modifications required to the 1980 plan, the county council proposed the review as a complete replacement rather than as a statutory alteration.<sup>8</sup>

In this chapter we undertake a detailed study and evaluation of the methods used and assumptions made in forecasting housing requirements in the review, and in distributing housing provision at local levels. We take the opportunity to consider in depth the responses of

interested parties, and how, in turn, the county council reacted to these responses. Using the Chelmer Population and Housing Model (referred to in earlier chapters) the House-Builders' Federation argued that provision should be made for some 10,000 dwellings more than had been proposed by the county council.<sup>9</sup> We give particular consideration to the alternative assumptions made by the Federation.

The responses of other authorities are also considered. In Chapter Five we noted that the district councils had continued to propose land allocations in Local Plans while the Structure Plan was under review. Particular attention is given to the relationship between these and other prior commitments and the proposals of the county council.

At the time of writing there existed no regional planning guidance for the East Midlands although a draft Issues Paper had been prepared in 1989 for consultation purposes and consideration by the DoE.<sup>10</sup> Having completed our detailed examination of the Structure Plan process in Nottinghamshire we extend our study by undertaking comparative assessment of approaches in neighbouring counties of the region - Derbyshire, Leicestershire and Lincolnshire. Similarities and differences in forecasting methods are identified, and differences in policy perspectives are considered. The chapter provides a comprehensive assessment of current practice in the four counties.<sup>11</sup>

## 6.2 THE NOTTINGHAMSHIRE STRUCTURE PLAN REVIEW:

### AREA GEOGRAPHY AND THE COMPONENTS OF NATURAL CHANGE IN THE POPULATION

The nine Strategy Zones which had been considered suitable units for analysis in the 1980 Nottinghamshire Structure Plan were not thought to provide an adequate basis for assessing housing requirements in the review. This was principally for two reasons. Firstly, in the light of the Department of Employment's reformulation of travel-to-work areas in 1984 it was considered that the Zones no longer constituted realistic units for assessing economic potential.<sup>12</sup> Secondly, as we saw in Chapter Five, there was a potential source of confusion for

district councils seeking to interpret and implement policies expressed by Strategy Zone.

"Demographic" assessments of housing requirements were therefore undertaken in the review for five county "Sub-Areas", based primarily on the reformulated travel-to-work areas, adjusted to coincide with district boundaries where feasible. Table 6.1 indicates the relationship between the Sub-Areas and the Strategy Zones.

Table 6.1      Sub-Areas and Strategy Zones

Sub-Area:	Strategy Zones:	Relationship:
South Nottinghamshire	6,7,8,9	approximate
West Nottinghamshire	3,5	approximate
West Bassetlaw	1	exact
East Bassetlaw	2	exact
Newark	4	approximate

The five Sub-Areas were divided into eighteen "Sub-Divisions", their basic purpose being to provide building blocks exclusively relating to one administrative district. This would facilitate interpretation and implementation, and reflected the Department of Environment's view that policies should be expressed by district area.<sup>13</sup> In fact the Sub-Divisions also serve to distinguish between urban and rural areas, the review quantifying the contribution each would be expected to make to meeting housing requirements. This means that there is greater precision in the policies of the review than those of the 1980 Plan, and we shall consider the determination of Sub-Divisional housing provisions later in the chapter.

As in the existing Plan, the review's projections of population involved the use of the county's cohort survival model. Two points should be noted here however. Firstly, the model was refined from its original specification of population by five-year age-groups to single years of age. Secondly, the model operates at a fine spatial scale, producing projections for building blocks which can be aggregated to Sub-Area, Strategy Zone or district level. There are twenty-one such building blocks, which are referred to as "Individual Zones" ("IZ areas").<sup>14</sup> We need not concern ourselves with mapping the IZ areas,

but in conducting a detailed study we must be aware of their existence since operating the model at this level influences the way in which the data is specified.

A 1986 base was assumed for population projection purposes. However estimating the 1986 population in each IZ area was complicated by the need for estimates by single years of age. These estimates drew on three sources:

- district area mid-year estimates published by OPCS;
- projections to 1986 from a 1981 census base;
- small area estimates derived using electoral registration statistics.

The main input was provided by the official OPCS figures, these being used as controls at each stage of the process of integration.<sup>15</sup>

Having derived these estimates adjustments were made for persons resident for six months or more in certain specified institutions - notably schools, prisons and hospitals. A survey approach was adopted to their enumeration, and they were isolated in the model on the grounds that they would not be subject to the same demographic processes as the rest of the community.<sup>16</sup> The size and age/sex-structure of this element was held constant at its 1986 level, in effect implying that on leaving these institutions the residents would be replaced by others of similar demographic characteristics.

We now consider the fertility and mortality rates used in the model. In Chapter Two we saw how OPCS employs age-specific fertility rates and age/sex-specific mortality rates, projected by the Government Actuary's Department at the national level, and modified by differentials for use at the county level. The county rates used in the 1985-based projections provided the basis for those used in the Structure Plan Review.<sup>17</sup> However before application they were adjusted to account for differences in rates observed in different parts of the county in 1986.

The adjustments involved the application of standardised fertility and mortality ratios, which express the degree of divergence between local and national patterns. Thus taking mortality as an example:

$$\text{SMR} = \frac{\text{observed deaths}}{\text{expected deaths}} \times 100$$

where SMR = standardised mortality ratio

$$\text{expected deaths} = \sum_k P_k.M_k$$

and  $P_k$  = population of age/sex group  $k$  locally

$M_k$  = mortality rate for age/sex group  $k$  nationally

Standardised mortality ratios therefore indicate the number of actual deaths in an area as a percentage of those which would have been expected had the local population been subject to the mortality rates experienced nationally.<sup>18</sup> A similar method is applied in computing standardised fertility ratios.

The procedure used in the review can be summarised as follows. Standardised ratios were derived from OPCS published data for each of the IZ areas and for the county. Controlling the former to the latter then enabled variations between the IZ areas and the county to be isolated from the variation between the county and the national pattern. The series of adjusted ratios so derived could then be applied to each of the specific fertility and mortality rates projected by OPCS for the county as a whole.<sup>19</sup> The county council considered this a more realistic approach to making projections of local fertility and mortality rates, given the complexities involved in attempting wholly independent projections.

### 6.3 MIGRATION ASSUMPTIONS : MODELLING PROCEDURES

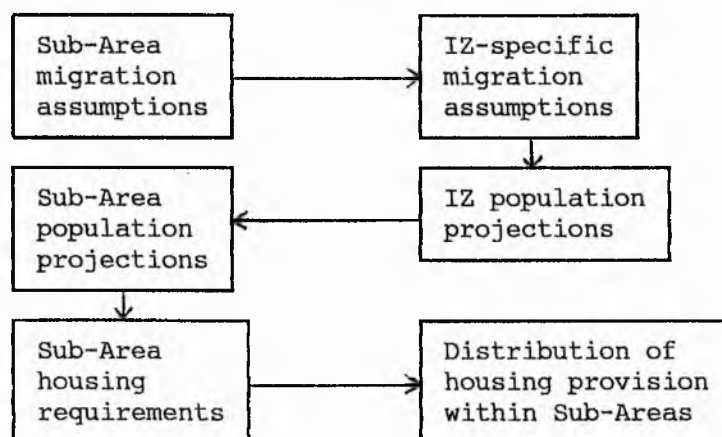
The review assumed that a constant level of net migration would be experienced in each year over the 1986-2001 period. Strategic migration assumptions were therefore expressed as numbers of net migrants per annum for each Sub-Area. We shall consider the approach taken in making each of these assumptions in turn. However before

doing so we consider the technical procedures for disaggregating the assumptions into a form compatible with the model.

Because the model operates at the IZ area level, it was necessary to assign the net migrants assumed for each Sub-Area to their constituent IZ areas. This was undertaken on the basis of judgments about the likely distribution of population within each Sub-Area.<sup>20</sup> We should be clear about the implications of this procedure. This apparently

circular process does not in itself predetermine the distribution of new housing within a Sub-Area, since, as we have noted, the IZ area population projections were aggregated to Sub-Area level prior to the "demographic" assessment of housing requirements. Figure 6.1 summarises the process.

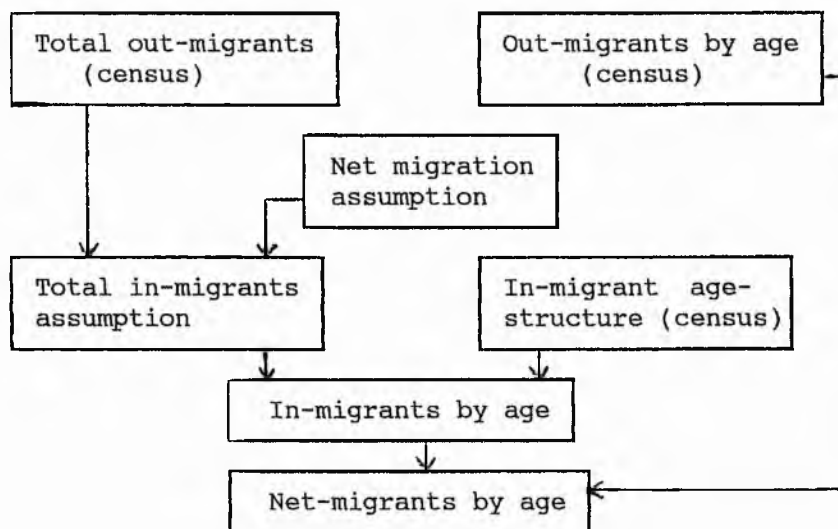
Figure 6.1 IZ Area Migration Assumptions in Context



We should, nonetheless, acknowledge the interaction between the base year population in each annual cycle of the projection period and the fertility and mortality rates applied. Since these rates were assumed to vary between IZ areas, the sum of the population projected in the IZ areas of a Sub-Area would vary according to the distribution of migrants. This of course is a detailed technical point, which must in any case be seen in the context of the wider uncertainties with which population projections are associated.

We now consider the disaggregation of the IZ area net migration assumptions by age and sex. The approach in the review projections involved making assumptions about the gross flows underpinning the net figures.<sup>21</sup> Essentially it was assumed that the scale and age-structure of out-migrants of each sex would equate with that recorded by the census. Having assumed that net migrants would be divided equally between the sexes, in-migrants could be calculated with reference to the assumed number of out-migrants. The number of in-migrants were then disaggregated according to the census age-structure. Having made these calculations, age/sex-specific net migration assumptions could be derived. Figure 6.2 summarises the procedure, as applied separately for each sex.

Figure 6.2 Disaggregation of IZ Area Net Migration Assumptions



Any comments we make about this procedure from the perspective of demographic theory have to be qualified, since the aggregate net migration assumptions were formulated exogenously and (as we shall see) were based on non-demographic factors. We note that out-migrant flows are fixed first, in-migrants being calculated as a residual, based on these and the net assumptions. This is appropriate, since the population at risk of migration is the population already resident in an area. However the number and age/sex-structure of out-

migrants recorded at census will reflect the population at risk of migration in the period prior to census night. Assumptions about out-migration are therefore made independent of the size and age/sex-structure of the population in the 1986 base year and in each subsequent year of the projection period.

A more sophisticated approach would be to apply age/sex-specific out-migration rates to the base population in each annual cycle (again calculating in-migration as a residual). However this would be more complicated and its validity open to question since the factors motivating migration are acknowledged to be other than purely demographic.

### Student Inputs

The OPCS Mid-Year Estimates treat students as usually resident at their term-time address. The model used in review therefore incorporated a special procedure to hold the number and age/sex-structure of students residing in the county and attending Nottingham Polytechnic and University at the 1986 level. It was considered unacceptable to isolate students alongside the institutional population as this would remove them from the effects of the fertility assumptions. For this reason they were treated as an additional component of migration.<sup>22</sup> Student inputs were calculated for each IZ area using the following formula:

$$\begin{aligned} \text{STDNTM}_i &= \text{STDNT}_i - \text{STDNT}_{i-1} \\ \text{where } \text{STDNTM} &= \text{student input (student net migration assumption)} \\ \text{STDNT} &= \text{polytechnic and university students not at} \\ &\quad \text{parental home, 1986} \\ i &= \text{single years of age, 17-29} \\ \text{and } \text{STDNTM}_{30} &= 0 - \sum_i \text{STDNTM}_i \end{aligned}$$

Thus over that part of the 17-30 age range where the size of the student population is rising, the student input would be positive : where it is falling it would be negative.

The projections submitted by the House-Builders' Federation did not make these adjustments.<sup>23</sup> The HBF challenged the methodology of the review's projections on the basis that students would not necessarily leave Nottinghamshire at the end of their courses. However the county council argued at Examination in Public that allowance for such behaviour is made within the strategic migration assumptions. That is to say students are in effect "sent home" at the end of their courses as part of the "student input", and are then "allowed" to migrate back into the county. This is not unreasonable, since on leaving college students' behaviour will be conditioned by a range of factors.

Nevertheless there is an inconsistency in the method used in the review. Consider a closed two county system, comprising Nottinghamshire and a second university county. If we were to apply the same approach in this second county, we would assume that non-local students attending college and residing there in term-time would migrate in from Nottinghamshire in their late teens, and return in their twenties. Yet no special procedure is made in the review's projection to maintain the age-structure of such flows. That is to say, we may conceive of a "gap" in the 1986 Mid-Year Estimate for Nottinghamshire, corresponding to the number of students then residing outside the county, but with parental homes within. This "gap" will be aged through in the review's projections, implying an overestimate of young adults and an underestimate of the number of persons of more mature years.

The significance of this inconsistency would depend on the difference between X and Y, where:

- X = non-indigenous students in Nottinghamshire, which the review model "sends home" in their twenties;
- Y = persons raised in Nottinghamshire but attending college elsewhere, who, if consistency is to be maintained, should be "returned" to the county in their twenties.

What conclusions should we draw from this analysis? If the value of Y were to tend to zero, the error due to the inconsistency would be

negligible, and the review's projections realistic. If on the other hand the value of Y were to tend towards the value of X, then for each age-group the net effect of student flows into and out of the county would itself tend to zero. If this were the case then the HBF projections - which do not make any adjustment for students at all - would be more realistic.

#### 6.4 MIGRATION ASSUMPTIONS : FORMULATION

We have noted that the student inputs were entered into the model alongside the migration assumptions for each IZ area. We now consider the formulation of the strategic Sub-Area migration assumptions from which these latter assumptions were derived. Table 6.2 sets out the migration assumptions proposed in the review, and enables comparisons to be made with those of the existing Plan and observed trends. In this context "migration rates" refer to migrants per annum.

Table 6.2 Net Migration Rates (Assumptions and Trends)

Sub-Area	Existing Structure Plan	1976-86 trend	1982-86 trend	Structure Plan Review (Consultative Draft)
South Nottinghamshire	-585	-360	525	0
West Nottinghamshire	290	5	-240	0
West Bassetlaw	315	30	90	150
East Bassetlaw	25	320	430	300
Newark	-20	225	400	350*
County Total	25	220	1205	800*

Source: Structure Plan Review Consultative Draft<sup>24</sup>

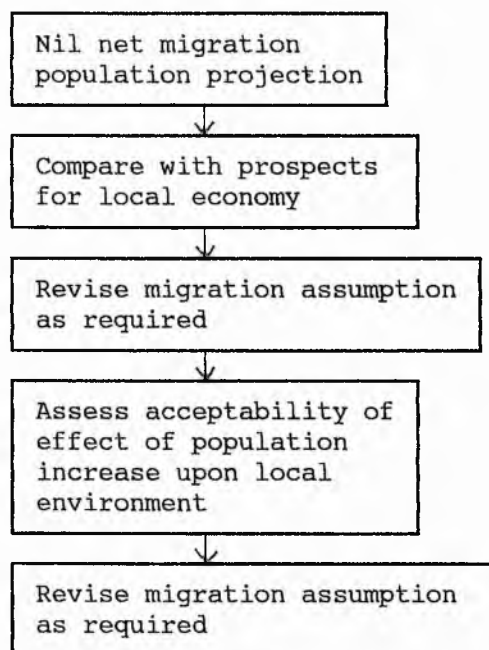
\*Note that the migration assumption for the Newark Sub-Area was subsequently revised to 450 persons per annum, with a corresponding increase in the assumption for the county as a whole to 900 persons per annum (-see later discussion).

Employment forecasts were not made in the Structure Plan Review. While assessments of economic potential still played an important role in determining migration assumptions, these assessments were a product of intuitive judgment rather than quantitative analysis. The county council's move away from the more theoretical approach of the earlier plan can be attributed to two inter-related reasons. Firstly, in the light of the experience of the early 1980's, the view had evolved that the uncertainty associated with employment forecasting meant that the considerable amount of time involved in this activity was no longer justifiable.<sup>25</sup> For example, the anticipated increases in employment and in-migration in West Bassetlaw had failed to materialise, while in other parts of the county the link between employment and migration had become uncertain. Thus, in East Bassetlaw substantial in-migration had occurred despite no major sources of employment emerging.

A similar situation had arisen in the South Nottinghamshire Sub-Area. As we noted in Chapter Five the 1980 Structure Plan anticipated a growth in employment, but applying a low "target" unemployment rate resulted in provision being made for an increase in population below that generated by natural change. In fact the 1976-86 period saw a decline in the level of net out-migration, with in-migration in the later years (Table 6.2). However over the same period the unemployment rate rose, and the county council considered the reason for the trend to be unclear.<sup>26</sup>

This leads us to the second reason for the difference in approach in the Structure Plan Review : its migration assumptions were based on a range of factors besides economic potential. In particular, the procedure for evaluating alternative scenarios attached importance to assessing the environmental impacts of different levels of population growth (Figure 6.3).

Figure 6.3    Structure Plan Review : Procedure for  
Evaluating Sub-Area Migration Assumptions27



This procedure means we must consider the possibility of feedback linkages, whereby population projections which serve as an input into the assessments of housing requirements are revised in a downward direction in the light of environmental considerations. However as circumstances in each Sub-Area vary, so to does the relative weight attached to different factors. To identify the prevailing factors influencing the proposed migration assumptions we must therefore synthesise and summarise the supporting reasoned justifications offered by the county council in the review (Table 6.3).

Table 6.3      Structure Plan Review (Consultative Draft):  
Reasoned Justifications for Migration Assumptions28

South Nottinghamshire Sub-Area

Factors mitigating against an assumption of out-migration:

- apparent trend of net in-migration
- reasonable prospects for local economy
- effects of housing pressure from south

Factors mitigating against an assumption of in-migration:

- trend of in-migration not a long term trend
- potential for increased congestion
- possibility of an unnecessary level of greenfield commitments

West Nottinghamshire Sub-Area

Factors mitigating against an assumption of out-migration:

- potential for economic growth (including accessibility to national road network)
- existing amount of land available for industrial and residential development

Factors mitigating against an assumption of in-migration:

- downward re-assessment of economic potential in the light of experience of early 1980's.

West Bassetlaw Sub-Area

Factors mitigating against an assumption of out-migration:

- scale of recent residential planning permissions granted on appeal\*

Factors mitigating against an assumption of in-migration:

- persistently high unemployment rates and uncertain prospects

East Bassetlaw Sub-Area

Factors mitigating against an assumption of out-migration:

- recent trend of in-migration, attributed to:  
     higher house prices south of county/national house marketing  
     electrification of rail links  
     attractive environments

Factors mitigating against an assumption of in-migration:

- limited economic capacity to sustain job-led in-migration
- neighbouring countries' policies to stem out-migration
- desirability of allowing rural areas to assimilate high past development rates

Newark Sub-Area

Factors mitigating against an assumption of out-migration:

- fast rate of economic recovery
- environmental benefits of utilising derelict land
- factors as in East Bassetlaw

Factors mitigating against an assumption of in-migration:

- detrimental effect of high development levels upon Newark Town environment

\* The Gateford Quarry and Gateford Hill sites, discussed in Chapter Five.

As a general observation, we note that the migration assumptions of the 1980 Structure Plan were revised in the Consultative Draft Review in the direction of the trend observed over the 1982-86 period (Table 6.2). Thus in West Bassetlaw and West Nottinghamshire the scale of net in-migration assumed was reduced - in the case of the latter Sub-Area to nil. Conversely the review made provision for net in-migration into Newark and East Bassetlaw, for which provision had previously been made for out-migration and limited in-migration respectively, while the assumption of net out-migration from South Nottinghamshire was reduced to nil. We also note the county council's reference to national house-marketing and the effects of higher house prices south of the county as factors which might contribute to an increase in the population of these areas (Table 6.3).

Having made these basic comments, we see that the tendency to limit provision for reasons of land conservation and "non-demand" policy factors is most apparent in South Nottinghamshire, and, to a lesser extent, in East Bassetlaw. Thus while the review assumed that both South Nottinghamshire and West Nottinghamshire would experience nil net migration, we see that the assumption for the latter Sub-Area is the product of a more flexible approach, facilitated by the existence of a considerable number of outstanding housing land commitments. The assumption here is therefore more optimistic than the recent past might suggest. This contrasts with the approach taken with regard to South Nottinghamshire. Here, the sensitivity of the environment identified as a theme in Chapter Five, coupled with uncertainty over future employment growth and continued housing pressure from the south, contributed to a more cautious approach.

## 6.5 MIGRATION ASSUMPTIONS : THE DEBATE

### Preliminary Representations of the House Builders' Federation

Representations were made concerning the validity of the migration assumptions in the period following publication of the Consultative Draft, and in response to the Submission Draft at Examination in Public. In submitting preliminary representations the House-Builders' Federation pointed to net migration into the county of approximately

3,000 persons per annum in the late 1980's, which it attributed to high house prices in the South-East and a ripple effect as people formerly resident in the region moved north.<sup>29</sup> The HBF acknowledged that this level of in-migration was unlikely to continue, but used it as a basis for arguing that future in-migration should be assumed at the 1982-86 annual rate of 1,205 - representing a substantial increase on the Consultative Draft proposal of 800 migrants per annum.<sup>30</sup>

This was rejected by the county council on the grounds that past patterns of migration were highly volatile and provided an inadequate basis for forecasting. However the ensuing debate highlighted a further issue, concerning the difficulties in identifying the patterns themselves. For example, at Examination in Public the county council tabled figures<sup>31</sup> suggesting that Nottinghamshire had in fact experienced net out-migration since 1986 : these figures were estimates produced by OPCS, whereas the figure supplied by the HBF was based upon information provided by the National Health Service Central Register.

An analysis of the tabled figures for earlier years is also revealing. The county council normally relies on the OPCS figures since they are available at fine spatial scales, and they were used in calculating the average annual rates of net migration over the 1982-86 period.<sup>32</sup> However the NHSCR estimates actually suggested limited net out-migration from the county over this period.<sup>33</sup> Clearly, the discrepancy indicates a major source of uncertainty, and is important since data relating to past trends was used to guide the review's forecasts and was used directly by the HBF in its representations.

The reader will be aware of the relationship between OPCS estimates and NHSCR data from our study in Chapter Two. This raises a further issue of concern, since the OPCS estimates are themselves supposedly based on NHSCR data, and the tabled figures were adjusted to allow for the standard OPCS assumption of a three month delay in the recording of moves. The discrepancy also results in the apparently anomalous situation in which the OPCS 1985-based population projections (which do incorporate NHSCR data) assume a much lower amount of migration into Nottinghamshire than those of the county council.<sup>34</sup>

## Representations of Local Authorities and Other Interested Parties

We now consider the representations made regarding the migration assumptions for each Sub-Area, and advise the reader that when making reference to past trends we are referring to the information supplied by OPCS and shown in Table 6.2. We consider first the Newark Sub-Area.

The Consultative Draft had proposed a higher level of in-migration for Newark than any other Sub-Area, on the basis of a range of factors including the area's economic potential and the effect of higher house prices in the South-East (Table 6.3). However in the Submission Draft the assumed annual inflow was revised upwards from 350 to 450 persons per annum. This upward revision reflected the views not only of the HBF and individual builders, but also of Newark & Sherwood District Council and the local Chamber of Commerce.<sup>35</sup>

The draft Newark-on-Trent Local Plan had been prepared in parallel with the review, and acknowledged the Consultative Draft proposals. However the Local Plan's dwelling provision implied a higher level of net in-migration. In part this reflected an assessment of the area's potential which was still more positive than that of the county council.<sup>36</sup> In addition it reflected the perceived merits of developing a particular site - the Balderton Hospital site - as a new village of between 1000 and 2000 dwellings.<sup>37</sup>

Although proposed nominally as a "village", this site fell within the urban part of the Sub-Area, and when the county council considered the draft plan in September 1989 the following view was taken:

"At the present time the residential land allocations exceed those of the Review but it is anticipated that in the light of representations made and fresh information, modifications to the Review will enable the Draft Local Plan to conform."<sup>38</sup>

Yet the representations to which reference was made here were essentially those of the district itself : we note that the HBF had been unsuccessful in achieving similar revisions in the proposed allowances for migration elsewhere. Thus we see here the direction of

influence involved : the county council's assumption for the Newark Sub-Area ultimately reflected that of the district council, which in turn reflected a detailed consideration of the propriety of developing specific sites.

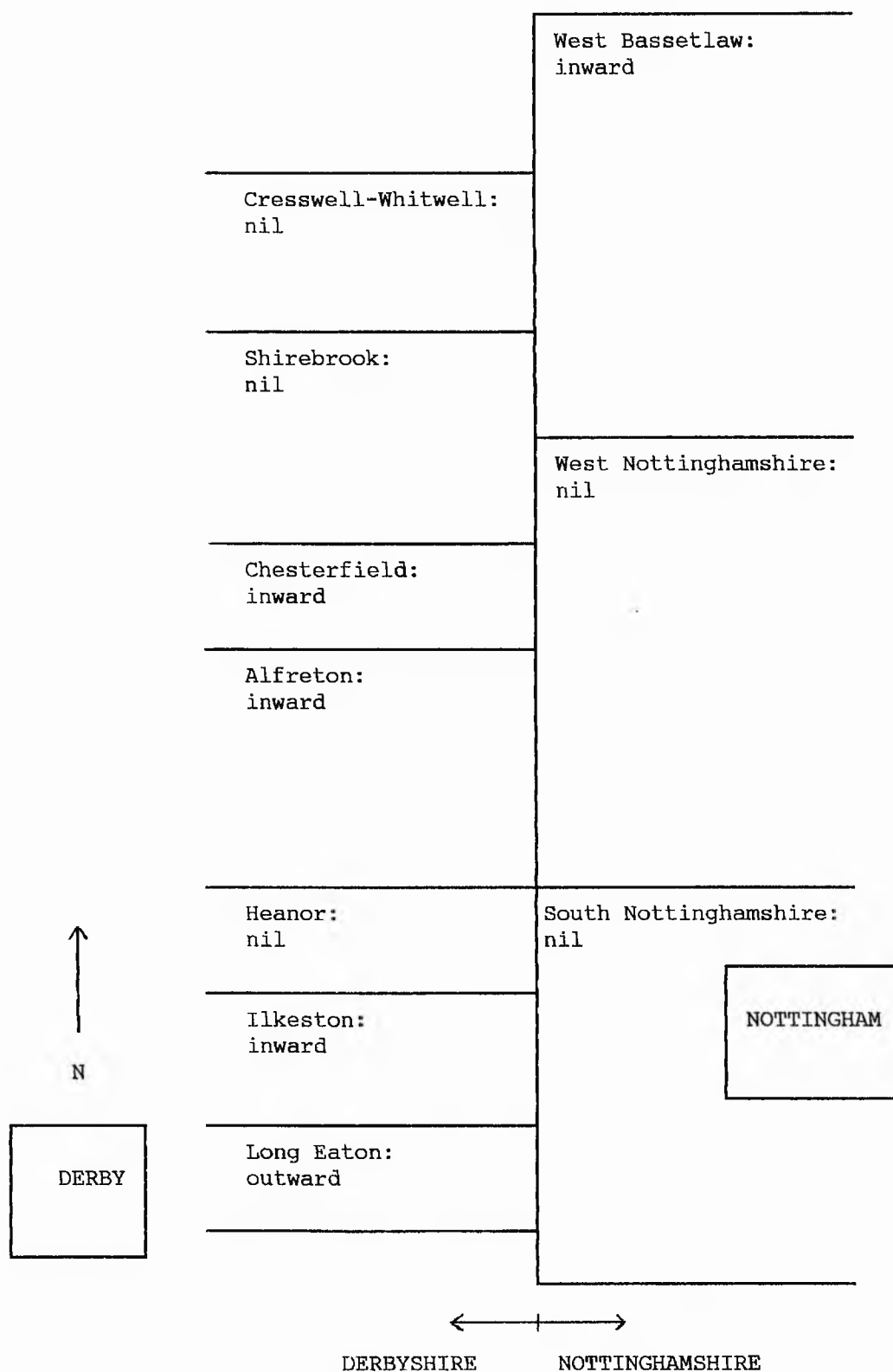
A similar relationship existed between the provisions of the review and those of the East Bassetlaw Local Plan. We noted in Chapter Five that the county council had considered that Bassetlaw's assumption of 250 net in-migrants for the Sub-Area was excessive. However we also observe that the review proposed the higher figure of 300.

The Sub-Areas of West Bassetlaw, West Nottinghamshire and South Nottinghamshire border Derbyshire, and the reader will be aware from our earlier references to the Nottinghamshire and Derbyshire Sub-Regional Study that the planning histories of the counties have been closely linked. We noted that the study had envisaged the channelling of development into a Growth Zone to the north of the county towns. However we also noted that while the Nottinghamshire Structure Plan also provided for growth in this area, joint emphasis was placed upon providing for development in and around Nottingham.

A parallel shift in strategy can be seen in the Derbyshire Structure Plan, also approved in 1980. Moreover Derbyshire, like Nottinghamshire, made provision for a Green Belt to control the location of development around its county town.<sup>39</sup> However the parallels exist not only in terms of planning policies but also in terms of the subsequent take-up of housing land, and the relationship between the more recent proposals of the county councils must be seen in this context.

The process of revising and rolling forward the policies in Derbyshire had been initiated before the Nottinghamshire Structure Plan Review, and the Derbyshire Replacement Structure Plan was submitted to the Secretary of State in 1989. For analytical purposes the plan area was divided into fifteen Sub-Areas, seven of which border Nottinghamshire.<sup>40</sup> Figure 6.4 shows diagrammatically the relationship between the Sub-Areas and indicates the direction of the net migration assumptions made for each.

Figure 6.4 Net Migration Assumptions for Sub-Areas Adjacent to Derbyshire/Nottinghamshire Border



In commenting upon the nil net migration assumption in South Nottinghamshire, Derbyshire County Council pointed out that in the past provision had been made for in-migration into Long Eaton and Ilkeston, two Sub-Areas situated in the borough of Erewash. Both county and borough argued that insufficient land was available for this to continue, that out-migration from Erewash would now occur, and that the overspill should be met in Nottinghamshire.<sup>41</sup> Thus the situation resulted in a stalemate : both Erewash and the adjacent part of Nottinghamshire (Broxtowe borough) are subject to Green Belt policies, and both counties considered the land within their respective areas to be particularly sensitive.

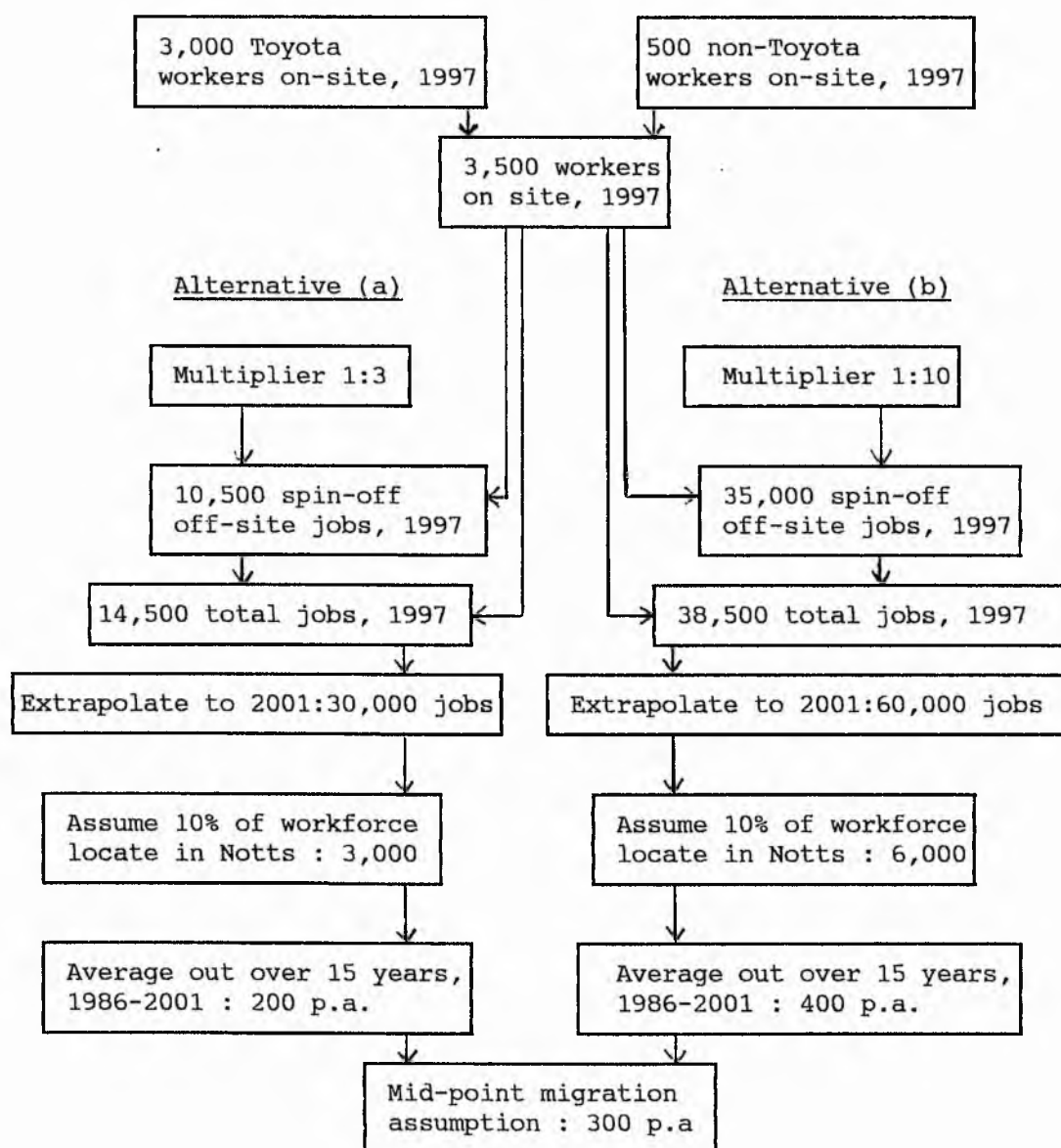
Indeed, Nottinghamshire County Council had itself submitted representations to Derbyshire, requesting that its Replacement Structure Plan should make more land available.<sup>42</sup> This request was rejected,<sup>43</sup> although in approving the plan the Secretary of State subsequently took the view that there could in fact be scope for developing additional land in Derbyshire.<sup>44</sup> In the absence of a regional framework, consultation and the process of statutory approval provide the only mechanisms for reconciling proposals in functionally inter-connected areas of neighbouring counties.

What of the provisions for the West Nottinghamshire and West Bassetlaw Sub-Areas? We see again that the approach of Nottinghamshire mirrors that of Derbyshire, the concern here being that both counties were making provision for net in-migration.<sup>45</sup> There are also parallels in the justifications given by the county councils for their stance. Thus in Alferton, as in West Nottinghamshire, the proposed migration assumption reflected the existence of a large amount of land committed for housing by past policies.<sup>46</sup> We shall take the opportunity to consider the provisions of the Derbyshire plan in more depth later in the chapter.

## Revised Representations of the House-Builders' Federation

Initially, the House-Builders' Federation had proposed that provision should be made for migration into South Nottinghamshire in line with the 1982-86 trend. However in responding to the Submission Draft the HBF increased its assumption for the Sub-Area (and for the county as a whole) by some 300 migrants per annum. This increase was based upon the results of an impact study<sup>47</sup> of the effects of a proposal to locate a vehicle assembly plant south-east of Derby - the Toyota project (Figure 6.5).

Figure 6.5 House-Builders' Federation Impact Study : The Implications of the Toyota Project for Migration into Nottinghamshire



The county council challenged the assumptions of the study on a number of grounds.<sup>48</sup> It was argued that:

- the anticipated number of on-site Toyota workers in 1997 was questionable;
- the multipliers should not be applied to the non-Toyota workers assumed to be working on-site;
- the multipliers were based on a similar study undertaken in the North-East where unemployment is higher and the impacts likely to be greater;
- the growth extrapolation to 2001 is highly speculative.

However we may generate an alternative "less optimistic" scenario, based on the HBF figures. If we ignore the non-Toyota on-site allowance, apply the lower multiplier, and do not extrapolate to 2001, we would still arrive at a migration assumption of 80 persons per annum. That is to say:

Total Toyota-generated jobs in 2001  
=  $3,000 + (3,000 \times 3) = 12,000$   
If 10% of workforce locates in Nottinghamshire, then total  
in-migrants =  $12,000 \times 0.10 = 1,200$   
If in-migrants are "averaged out" over 1986-2001 projection  
period, then migration rate =  $1,200 \div 15 = 80$  persons per  
annum

We would also be justified in arguing that an additional allowance should be made for non-employed spouses and other members of migrant workers' families.

However the county council challenged the assumptions of the impact study in other ways.<sup>49</sup> Firstly, it was argued that jobs generated by the project may serve to offset job losses elsewhere, in which case no additional in-migration would occur. One question which this raises concerns the degree to which the skills of the local labour force would match those required by the new industries. Secondly, the county council disputed the assumption that 10% of the workers attracted would locate in Nottinghamshire as arbitrary. This assumption was made on the basis that market pressures brought about by the development of the Toyota plant would result in house price rises in Derby, leading employees to seek properties further afield.

This raises two points for consideration. Firstly, if we reconsider our "less optimistic" scenario we would expect that the smaller the number of Toyota-generated jobs, the lower the increase in housing demand, the lower the rise in house prices in Derby, and hence the lower the proportion of workers opting to locate in Nottinghamshire. The second point concerns the assumption that in-migrants would locate in South Nottinghamshire rather than in other parts of the county. The county council undertakes an annual survey of advertised house prices, and although no figures were published<sup>50</sup> or tabled at the Examination in Public it was argued that in-migrants would be more likely to locate in the lower-priced West Nottinghamshire Sub-Area. In-migration into this area would of course be more acceptable from a policy perspective, given the existence of prior residential commitments here, and the Green Belt constraints around Nottingham. The county council therefore rejected the representations made on the basis of the impact study, as well as those based on the continuation of the 1982-86 migration trend.

#### 6.6 HOUSEHOLDS AND HOUSING REQUIREMENTS IN THE NOTTINGHAMSHIRE STRUCTURE PLAN REVIEW

Projections of households in each Sub-Area were made by applying the Department of Environment's 1985-based projections of headship rates for Nottinghamshire, standardised for marital status. As in the DoE's projections, persons recorded as not resident in private households in 1981 were deducted from the population projections prior to application, as were students living in halls of residence.<sup>51</sup>

Headship rates were applied to the 1986 base population of each Sub-Area, and housing requirements were calculated on the basis of the change in households between 1986 and 2001. However it was considered necessary to control the projections to "dwelling-based" estimates of numbers of households in order to allow for variations in headship between the Sub-Areas.<sup>52</sup> These estimates were derived as follows:

$$DBH_{86} = CH_{81} + D_{81-86} (1 - VR_{81})$$

- where  $DBH_{86}$  = dwelling-based estimate of households in 1986  
 $CH_{81}$  = 1981 census households  
 $D_{81-86}$  = net change in dwellings, 1981-86  
 $VR_{81}$  = 1981 census vacancy rate

Here then, the assumptions are that the same number of households shared a dwelling in 1986 as in 1981, and that the vacancy rate remained constant.

The dwelling-based estimates were used as revised estimates for the 1986 base year, and adjustment factors - computed as ratios between these and the provisional 1986 estimates - were applied to the projections for 2001. In each of the Sub-Areas the dwelling-based estimates were lower than the provisional estimates,<sup>53</sup> implying (ceteris paribus) that the actual increase in headship rates in the county between 1981 and 1986 had been slightly lower than had been anticipated by the DoE.

As we noted in Chapter Three, the DoE's projections of headship rates are commonly used by local planning authorities. The 1985-based rates were used not only in the county council's forecasts of housing requirements but also in those of the House-Builders' Federation,<sup>54</sup> and the assumptions used in their projection were not debated. Nevertheless it is appropriate to acknowledge here the significance of the debate regarding the treatment of the county's student population. The DoE's projected headship rate for males aged 30-44 in 2001 was 0.8506, while the corresponding rate for the 15-29 age group was only 0.3216.<sup>55</sup> Clearly then, the different age-structures arising from alternative approaches to handling students would have a considerable impact on numbers of households.

Responding to the proposals of the review, the HBF argued that the decline in building rates since the late 1970's was indicative of growing "latent demand" caused by the recession of the early 1980's.<sup>56</sup> However the county pointed out that the fall in rates was mainly attributable to a reduction in public sector building and that the private sector was unlikely to provide low-cost "affordable" housing. Nevertheless it was suggested that the projections took into account "latent demand" in the sense that they included concealed married couple families and need due to households sharing a dwelling in 1981.<sup>57</sup> It was assumed that a notional three-quarters of households sharing would require separate accommodation - a more generous

assumption that had been made in the earlier Structure Plan. Allowing for the re-use of those dwellings occupied by sharers, this element of need was calculated as:

$$\frac{3}{4} HS_{81} - \frac{1}{OR} \left( \frac{3}{4} HS_{81} \right)$$

- where  $HS_{81}$  = households sharing in 1981  
 $OR$  = occupancy rate

An occupancy rate of three was assumed, giving a need figure equal to half the total number of sharing households.

In the Submission Draft a plan base year of 1988 rather than 1986 was assumed, and the equation used in calculating housing requirements in each Sub-Area discounted dwellings completed in the intervening period:<sup>58</sup>

$$DR_{88-01} = (CH_{01} + CONMC_{01} - CH_{86} + \frac{1}{2} HS_{81})(1 - VR)^{-1} + DL_{86-01} - COM_{86-88}$$

- where  $DR_{88-01}$  = dwelling requirement for 1988-2001 plan period  
 $CH$  = census-type households  
 $CONMC$  = concealed married couple families  
 $HS$  = households sharing  
 $VR$  = vacancy rate  
 $DL$  = dwelling losses  
 $COM$  = dwellings completed

81,86,88,01 denote years 1981,1986,1988,2001

The forecasts of the review, like those of the existing Structure Plan, assumed that the number of second homes and holiday lets would remain unchanged and incorporated estimates of anticipated losses to the dwelling stock based on clearance estimates supplied by the district planning authorities.<sup>59</sup> However unlike the existing Structure Plan, the review assumed that vacancy rates for each Sub-Area would remain at the census level: it was thought that while a rise in rates might occur as a result of an increase in the proportion of owner-occupied dwellings, this would be offset by government policies aimed at reviving the private rented sector.<sup>60</sup>

We acknowledged in Chapter Three that assessing the contribution which existing dwellings should make to satisfying the housing requirements of a future population is a particularly problematical aspect of forecasting. In calculating the provision for "replacement dwellings" solely on the basis of clearance estimates, no consideration is given to the tenure, type, size and locational characteristics of the stock: it is assumed that households can be expected to make full use of existing dwellings. "Obsolescence" in the existing stock is allowed for only in the indirect sense that the census-based vacancy rates will include dwellings vacant for this reason.

The assumption was made that 3,400 dwellings would be cleared in the county over the 1986-2001 period, with some 3,000 demolitions in the City of Nottingham.<sup>61</sup> The county council considered its forecasts to be realistic assessments of change, but they were questioned by the HBF on two grounds.<sup>62</sup> Firstly, it was argued that the forecasts should be based on a consistent strategy for tackling poor housing; secondly, it was argued that they should reflect the level of unfitness and disrepair in the dwelling stock, the estimates of losses outside Nottingham being excessively low.

A consideration of local housing authority Housing Investment Programme submissions reveals discrepancies between the clearance assumptions and estimates of the number of unfit dwellings. In the district of Newark & Sherwood for example, 260 dwellings were identified as unfit in 1986,<sup>83</sup> but the county council assumed that only 50 would be cleared in the period to 2001. Similarly in Mansfield, where a clearance assumption of 100 dwellings was made, 257 dwellings were identified as unfit in 1986, this figure rising to 530 in 1989.<sup>64</sup> On the other hand a clearance assumption of 40 dwellings was made in Ashfield, whereas the 1986 HIP submission indicates that only 25 dwellings were unfit - although over 2,000 had been recorded as fit but lacking basic amenities.<sup>65</sup>

The connection between unfitness and clearance is open to question however, and in response to representations the county council drew attention to the option of improvement, the implications of increased owner-occupation, and the reaction against large-scale clearance since the 1960's, commenting that it was "not in a position to lay down targets" in this respect.<sup>66</sup> Nevertheless as we saw in Chapter Three, the central government policy context is changing. A corporate, integrated approach to assessing renewal strategies is now envisaged,<sup>67</sup> and while a swing back to wholesale redevelopment is unlikely, it is considered "no longer appropriate to give automatic preference to renovation".<sup>68</sup>

Assumptions regarding stock losses represented the third critical difference in the HBF forecast of county housing requirements (after migration assumptions and student projection methodology). The HBF proposed a requirement for 2,500 extra "replacement dwellings" but provided no justification for their figure.<sup>69</sup> Rejecting the proposal, the county council suggested that changes in national clearance policy could best be dealt with in future plan reviews.<sup>70</sup>

#### 6.7 DISTRIBUTION OF HOUSING PROVISION

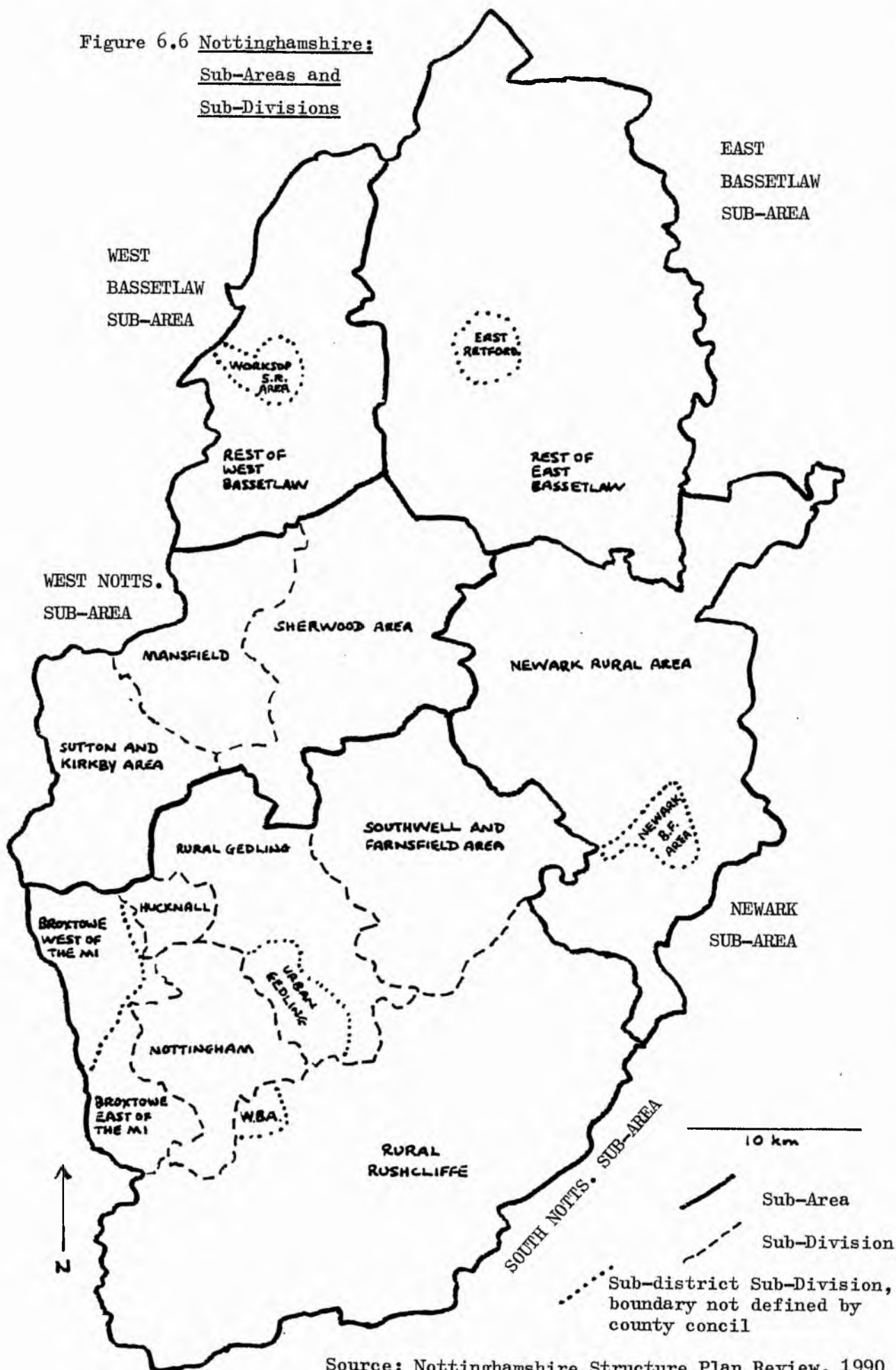
The review indicates housing provision for each district and district Sub-Division. Our next area of study therefore concerns the approach taken in the distribution of the Sub-Area housing requirements. Table 6.4 shows the forecasts of housing requirements at the Sub-Area level, and Figure 6.6 and Table 6.5 illustrate the relationship between the Sub-Areas and the Sub-Divisions.

Table 6.4 Structure Plan Review (Submission Draft):  
Sub-Area Housing Requirements, 1988-2001

South Nottinghamshire	23,950
West Nottinghamshire	8,800
West Bassetlaw	3,850
East Bassetlaw	3,300
Newark	3,900
County Total	43,800

Source: Nottinghamshire Structure Plan Review<sup>71</sup>

Figure 6.6 Nottinghamshire:  
Sub-Areas and  
Sub-Divisions



Source: Nottinghamshire Structure Plan Review, 1990

Table 6.5 Sub-Areas and Sub-Divisions

Sub-Area	Sub-Division	(District)
South Nottinghamshire	Hucknall	(Ashfield)
	Broxtowe East of the M1	(Broxtowe)
	Broxtowe West of the M1	(Broxtowe)
	Urban Gedling	(Gedling)
	Rural Gedling	(Gedling)
	Southwell and Farnsfield Area	(N&S)
	Nottingham	(Nottingham)
	West Bridgford Area	(Rushcliffe)
	Rural Rushcliffe	(Rushcliffe)
West Nottinghamshire	Sutton and Kirkby Area	(Ashfield)
	Mansfield	(Mansfield)
	Sherwood Area	(N&S)
West Bassetlaw	Worksop, Shireoaks,	
	Rhodesia Area	(Bassetlaw)
	Rest of West Bassetlaw	(Bassetlaw)
East Bassetlaw	East Retford	(Bassetlaw)
	Rest of East Bassetlaw	(Bassetlaw)
Newark	Newark, Balderton,	
	Farndon Area	(N&S)
	Newark Rural Area	(N&S)

[N&S = Newark & Sherwood District]

The strategy of concentrating development in and around existing urban areas was maintained in the review.<sup>72</sup> While the county council stated an intention to make provision for sufficient housing to meet demand in the county as a whole,<sup>73</sup> it was acknowledged that:

"So far as demand for housing in different locations is concerned, this has to be balanced against other planning considerations such as the Green Belt, conservation policies and protection of the countryside."<sup>74</sup>

The House-Builders' Federation consistently argued that the degree of concentration proposed was excessive and that the strategy may "provide homes where people do not ideally wish to live".<sup>75</sup> The review did, nonetheless, acknowledge "a demand for a variety of residential locations", that "there is scope in the overall strategy to meet these demands",<sup>76</sup> and that "limited provision" would be made in a small number of designated villages.<sup>77</sup> We must therefore consider in detail the methods used in determining provision at the Sub-Divisional level.

Tables published in the review<sup>78</sup> indicate the contribution which the county council expected to be made by different "sources of dwelling supply":

- a. total dwelling provision
- b. dwellings on identified sites
  - c. planning permissions (1988)
  - d. allocations in statutory and non-statutory Local Plans, and other publicly identified sites (1988)
- e. estimates of dwellings from other sources
  - f. unidentified small sites of less than 10 dwellings (1988-2001)
  - g. redevelopment (unidentified sites), conversions and changes of use (1988-2001)
- h. dwellings required on other large sites

The following relationships hold:

$$b = c + d \text{ and } e = f + g$$

And:

$$b_{sa} = \sum_{sd} b_{sd} \text{ and } e_{sa} = \sum_{sd} e_{sd}$$

- where sa denotes a Sub-Area and sd a constituent Sub-Division

The number of dwellings required "on other large sites" at the Sub-Area level is calculated as a residual, except in West Nottinghamshire, where special circumstances apply. Thus:

$$h_{sa} = a_{sa} - b_{sa} - e_{sa}$$

These dwellings are then distributed between the Sub-Divisions such that:

$$\sum_{sd} h_{sd} = h_{sa}$$

The district councils will therefore have the responsibility of allocating land in future Local Plans to satisfy the requirement for dwellings "on other large sites" in each Sub-Division ( $h_{sd}$ ).<sup>79</sup>

The total housing provision for each Sub-Division, which represents the policy of the review, is derived as follows:

$$a_{sd} = b_{sd} + e_{sd} + h_{sd}$$

Our first task will therefore be to study the assumptions made in discounting the number of dwellings on sites already committed for housing (b), and those thought likely to be provided from sundry "other sources" (e). Our second task will be to consider the distribution of dwellings required "on other large sites" (h).

## Discounting Procedures

Responding to the review, the House-Builders' Federation was critical of the assumption that sites already identified for housing would actually be taken up.<sup>80</sup> In one respect this is a valid point. For example, the review assumed that outstanding land allocations dating from the Newark Town Map of 1964 would be developed<sup>81</sup> yet in 1976 the district council had assessed them as being unattractive to builders and had concluded that they would probably not be taken up.<sup>82</sup> However in another sense the criticism is unfounded, since the review's provisions do not preclude the re-appraisal of sites in land availability studies, and the allocation of alternatives.

The particular significance of the discounting procedure is that it effectively "ties" the number of dwellings which theoretically could be accommodated on sites already identified, to the Sub-Divisions in which these sites are located. That is to say, the higher the number of dwellings already committed in this way, the lower the requirement for dwellings "on other large sites" ( $h_{sa}$ ) and the less the scope of the review for influencing the distribution of the overall housing provision ( $a_{sa}$ ).

The number of outstanding commitments in 1988 was in fact substantial. Over 30,000 dwellings had permission or could be accommodated on allocated sites,<sup>83</sup> representing almost three-quarters of the county's total housing requirement. Although the majority of these commitments were in the urban areas, and as such not prejudicial to the development strategy, a considerable number were in the rural areas.<sup>84</sup> Although permissions may be revoked and Local Plan allocations deleted the county council did not consider these options desirable or realistic, given the costs of revocation, considerations of political acceptability on the part of the district councils, and a reluctance to entertain notions of blueprint master-planning.<sup>85</sup>

The contribution which the county council expected unidentified redevelopment sites, conversions and changes of use would make to meeting housing requirements was relatively small, amounting to some 2,200 dwellings.<sup>86</sup> However an allowance was made for 4,000 dwellings on "unidentified small sites" and this component merits further investigation. The main reason for making this allowance was that development proposals would continue to come forward on sites other than those allocated in Local Plans. Here again, the merits of applying the discounting procedure to these "windfall sites" were questioned by the HBF:

"Windfall development is, by definition, the antithesis of planning. The reliance on 'windfall sites' inevitably implies a reduction in planned land supply. Essentially, this ensures that higher levels of windfall development will undoubtedly occur, effectively resulting in a [self-] fulfilling prophecy."<sup>87</sup>

However another reason for the county making an allowance for such development related to the desirability of making provision for housing specifically to meet the needs of existing residents in rural communities. This had been sought by the existing Structure Plan,<sup>88</sup> although government's outlawing of "occupancy" planning conditions meant that the local planning authorities had little influence. Although the position in respect to planning conditions has remained unchanged, February 1989 saw the Secretary of State give a modicum of support for planning agreements to secure low-cost "affordable" housing in rural areas.

The Secretary of State indicated that the willingness of developers to enter into planning agreements to provide such housing, particularly on small sites in or adjoining villages which would not otherwise be released, could constitute a material consideration in handling planning applications.<sup>89</sup> Proposals of this kind had been made by builders regarding sites in Nottinghamshire in the late 1980's, notably in rural Rushcliffe.<sup>90</sup> However since an unwillingness on the part of builders to enter into a planning agreement regarding land specifically allocated for housing in Local Plans would not constitute

grounds for refusing planning permission, the county council acted on the Secretary of State's statement in determining its allowances for windfall development.<sup>91</sup>

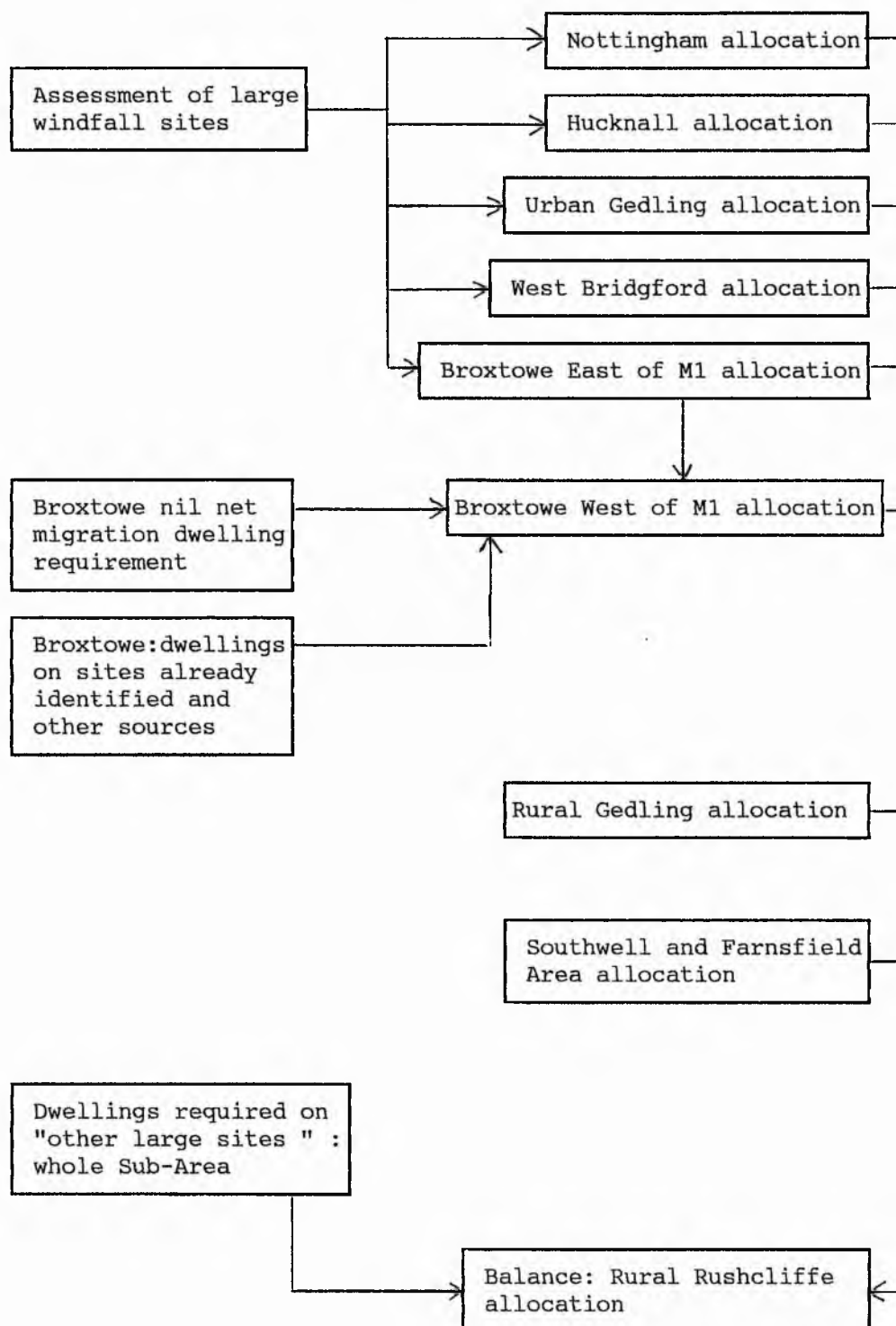
The allowances were generally welcomed by the district planning authorities, although Bassetlaw expressed a concern that discounting outstanding planning permissions would restrict the role of future Local Plans, precluding the further allocation of significant amounts of land.<sup>92</sup> The response of the county council was that the allowances were not intended to be rigid targets,<sup>93</sup> which implies that Local Plans may in fact allocate more land than the review had proposed, should they see this as appropriate.

#### Dwellings Required "On Other Large Sites"

We now consider the distribution of dwellings required "on other large sites". The West Bassetlaw, East Bassetlaw, and Newark Sub-Areas each comprise an urban and a rural Sub-Division, and small notional allowances of between 100 and 200 dwellings were made in the rural areas.<sup>94</sup>

The procedure applied in South Nottinghamshire involved an assessment of large windfall sites which might become available for housing development in the City of Nottingham and the urban Sub-Divisions.<sup>95</sup> Having made allowances for such development the total provision for housing in Broxtowe borough was set so as to meet the requirements of a natural increase in the population.<sup>96</sup> Small notional allowances were made for those Sub-Divisions largely comprising Green Belt, and the balance of the Sub-Area requirement was assigned to Rural Rushcliffe, to be met on sites beyond the outer boundary of the Green Belt.<sup>97</sup> Figure 6.7 illustrates the steps involved.

Figure 6.7 South Nottinghamshire Sub-Area : Provision for Dwellings on "Other Large Sites"



The key to the distribution therefore lay in the assessment of large windfall sites in the conurbation. An anomaly arises here, in that since by definition those sites which become available for windfall development cannot be predicted, they cannot in fact be allocated as "other large sites" in Local Plans. Moreover, the allowances made were in addition to the allowances made for small windfall sites (of capacity less than 10 dwellings), as discussed above.

The windfall assessment provoked much comment from interested parties. In Chapter Five we saw how Nottingham City Council had generally sought to accommodate new housing where possible. However in responding to the Consultative Draft Review an objection was submitted that the expected contribution of windfalls was excessive and would preclude the necessary development of land for other uses.<sup>98</sup> Accordingly the provision here was reduced in the Submission Draft, with corresponding increases made elsewhere, principally in Rural Rushcliffe.<sup>99</sup>

Nevertheless this shift did not satisfy the House-Builders' Federation and individual builders who sought a greater dispersal throughout the Sub-Area and a redrafting of Green Belt boundaries. The county council's position in this respect was clear:

"It is accepted that the distribution of housing proposed in consequence of the strategy of concentration of development and the maintenance of the Green Belt is not the distribution which consideration of market demand would produce. Indeed it is virtually axiomatic that a Green Belt will have a constraining effect on the location of new housing - if it does not have such an effect it is unlikely to be meeting its aims..."<sup>100</sup>

The general reluctance of the various districts to accept further increases in housing provision was evident at the Examination in Public, and it is precisely in areas such as South Nottinghamshire that the strategic co-ordinative role of county councils is of particular importance. Different circumstances apply in the West Nottinghamshire Sub-Area, where outstanding permissions and prior allocations in Local Plans exceeded the total dwelling

requirement. Here a different approach was used whereby demographic forecasts were made for each Sub-division, on the assumption that net migration would occur from the rural to the urban parts.<sup>101</sup> The size of the flow was assumed to be small however, with the result that a limited number of additional sites would require allocation in Local Plans in the rural Sherwood Area Sub-Division.

In summary then, the county council acknowledged that the strategy of urban concentration contrasted with builders' perceptions of demand in the rural parts of Nottinghamshire. Pursuing the strategy, it was proposed that future Local Plans should make only limited additional allocations in these areas. However the provisions of the review (Figure 6.8) were also influenced to a considerable degree by outstanding permissions and prior Local Plan allocations. The particular consequence of applying the strategy in South Nottinghamshire was a reliance on windfall sites in the conurbation, due to the constraint on outward growth imposed by the Green Belt. However an additional effect of the Green Belt was a relatively high provision for new Local Plan allocations in the outer rural part of the borough of Rushcliffe - further away from the Nottingham urban area.

Figure 6.8 Nottinghamshire Structure Plan Review (Submission Draft):  
Policy 3/1

Provision will be made between 1988 and 2001 for about  
43,800 dwellings, distributed as follows:

<u>District</u>	<u>Sub-division</u>	<u>Dwellings</u>
Ashfield	Hucknall	1,000
	Sutton and Kirkby Area	2,800
Bassetlaw	East Retford	1,950
	Rest of East Bassetlaw	1,350
	Worksop, Shireoaks, Rhodesia Area	2,850
	Rest of West Bassetlaw	1,000
Broxtowe	East of the M1	2,950
	West of the M1	1,400
Gedling	Urban Gedling	2,600
	Rural Gedling	850
Mansfield		4,650
Newark & Sherwood	Newark, Balderton, Farndon Area	3,350
	Newark Rural Area	550
	Sherwood Area	1,350
	Southwell and Farnsfield Area	750
Nottingham		8,450
Rushcliffe	West Bridgford Area	3,100
	Rural Rushcliffe	2,850

## 6.8 COMPARATIVE STUDY OF CURRENT PRACTICE IN THE EAST MIDLANDS

In this section we extend our study of current practice by considering the methods used by the counties of Derbyshire, Leicestershire and Lincolnshire in determining their Structure Plan housing provisions.

We have already made reference to various aspects of planning in Derbyshire. The Derbyshire Replacement Structure Plan<sup>102</sup> was submitted to the Secretary of State in 1989 and on subsequent approval superseded the plan of 1980. The 1989 plan was prepared to a time-horizon of 2001 and contains policies for all areas of the county outside the Peak District National Park.

Historically, Leicestershire has been divided into two areas for strategic planning purposes. The Rutland Structure Plan was approved in 1979 and contained policies for the district of Rutland, situated in the rural east of the county. The Leicestershire Structure Plan, approved in 1976, related to the remaining seven districts of the county. The housing policies were revised and rolled forward to 1996 in the Rutland Structure Plan Alteration No 1 and Leicestershire Structure Plan Alteration No 2,<sup>103</sup> both of which were submitted to the Secretary of State in 1985 and subsequently approved.

The Lincolnshire Structure Plan was prepared in the late 1970's and approved in 1981. A review of the plan's housing policies was initiated in the late 1980's and revised proposals were contained in the Lincolnshire Structure Plan Alteration No 1 (Consultation Draft), published in February 1990.<sup>104</sup> The forecasts of the alteration were prepared to a time horizon of 2001, and on approval the policies will replace those of the existing plan.

Table 6.6 summarises the features of the more recent forecasts of housing requirements. A number of similarities are evident. In each case single region cohort survival models were used, mortality and fertility rates were derived from the Government Actuary Department's projections used by OPCS, and DoE headship rates were used in projecting households.

Table 6.6      Structure Plan Forecasts : Components and Methods

	Nottinghamshire Review, 1990	Derbyshire Replacement Plan, 1989	Leicestershire/Rutland Plan Alterations, 1985	Lincolnshire Alteration (Consultation Draft)1990
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Population:

Single region cohort survival model used?	Yes	Yes	Yes	Yes
Main data source for base year population	1986 Mid-Year Estimate	1981 MYE, updated to 1986	1981 census usually resident (transfer base)	1981 census usually resident (transfer base), updated to 1988
Adjustment for students	Treated as net migrants	Not university county	Held constant (separate adjustment)	Not university county
Mortality/fertility rates derived from GAD projections?	Yes	Yes	Yes	Yes
Main factor determining strategic migration assumptions (for detailed study see text)	Employment	Various	Employment	Housing

Households:

DoE headship rates as data input?	Yes	Yes	Yes	Yes
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(cont'd overleaf .....)

Headship rate specification	Age/sex/type	Age/type	Age/sex/marital status/type	Average household size
Non-domestic population	Assumed constant	*	Assumed constant	Assumed constant
Provision for "concealed families" to occupy separate dwellings	Concealed married couples	*	Concealed married couples and small allowance	Concealed married couples and lone parents (DoE projection)
Assumption re households sharing a dwelling	1/4 existing sharers do so willingly	*	*	No households share willingly (**)
<u>Housing requirements:</u>				
Method of calculation	Deduct existing households	Deduct existing households	Deduct existing dwellings	Deduct existing dwellings
Method of forecasting "losses" to stock	District planning authority clearance estimates	Clearance estimates/HIP's	District housing authority clearance estimates	1/2 past clearance rate
Holiday lets/second homes (other than student dwellings)	Assumed constant (**)	*	Assumed constant (**)	Assumed constant (**)
Method of forecasting vacant dwellings	1981 census vacancy rates	1981 census vacancy rates	Vacancy rates projected from 1971-1981 trend, adjusted for local housing authority policies	1981 census vacant dwellings
Flexibility allowance?	No	10%	No	No

Source: Various 105

\* Insufficient documentary evidence

\*\* Implicit assumption

However there are also differences in techniques and assumptions. For example, Leicestershire and Nottinghamshire adopted slightly different approaches to the contentious issue of forecasting students. Since the population base used in Leicestershire was provided by the census, students attending the county's university and polytechnic were excluded. A separate adjustment was therefore made on the assumption that the number of student households would remain constant.<sup>106</sup> This means that the student population is prevented from "ageing" (as in Nottinghamshire), but the approach does not allow for increases in headship rates amongst the student age-group (The assumption that student headship rates will reflect those of the rest of the population is of course debatable given differences in economic and social/behavioural characteristics).

While each of the forecasts used DoE headship rates these were specified in different ways. Of particular note is Lincolnshire's use of the DoE's projected average household size (inverse crude headship rate) in undertaking household projections. This approach detracts from the usefulness of a cohort survival model in producing population projections disaggregated by age. The implicit assumption is that the age (and sex) distribution of the population will reflect that of the OPCS projection assumed in the DoE's own projection of households for the county. (For a fuller discussion of the mechanics and implications of standardising headship rates, see Chapter Three).

Lincolnshire County Council also undertakes alternative projections of average household size using data from censuses since 1951, although the DoE's projection was used for plan purposes because it was thought less likely to be disputed.<sup>107</sup> Fitting a modified exponential curve to observed data, implying a reduced rate of decline in average household size, the county council projected a value of 2.39.<sup>108</sup> This was lower than the DoE's projection for the county of 2.46,<sup>109</sup> and it is useful to consider the effect of applying the county council's figure upon households and housing requirements.

The county projected a private household population of 658,200 in 2001,<sup>110</sup> implying 275,397 households using its own figure, and 267,561 households using that of the DoE - a difference of almost 8,000.

Using the DoE's projection, the county council calculated a housing requirement over the 1988-2001 plan period of 51,900 dwellings.<sup>111</sup> Using the county council's own projection of average household size would therefore imply an increase in the number of dwellings required of some 15%. This clearly illustrates the sensitivity of forecasts to variations in average household size.

Not all counties are equally thorough in publishing documentary evidence giving detailed information regarding data inputs and methods of calculation. This is important since it has implications for the "accessibility" of plan assumptions to public scrutiny. The Nottinghamshire Structure Plan Review provides an example of particularly good practice in this respect. Technical information is largely omitted from the main body of the plan (the Explanatory Memorandum) in the interests of conciseness, but details are included in a series of published supplementary reports.<sup>112</sup>

However where counties do publish information regarding inputs and methods the logic underpinning their calculations is not always clear. In the Lincolnshire alteration for example, housing requirements were assessed as the balance between future households and existing dwellings.<sup>113</sup> The number of dwellings excluded existing second resident and holiday accommodation, implying an assumption (not stated) that their number would remain constant over the plan period. However the vacancy allowance was not calculated by applying a vacancy rate to the projection of (usually resident) households - as is normal - but by assuming that the number of vacant dwellings would remain constant at the 1981 census level.<sup>114</sup> Given an increase in the number of households this might imply an insufficient provision for future vacant dwellings. On the other hand the vacancy allowance included unoccupied holiday lets and second homes. In effect these dwellings were therefore discounted twice, implying an over-provision for new housing development:

$$DR_{88-01} = CH_{01} + CONF_{01} + VA_{81} - (D_{88} - HOL_{81}) + DL_{88-01}$$

- where DR = dwelling requirement

CH = census households

CONF = concealed families

VA = vacant dwellings (including unoccupied holiday lets and second homes).

D = dwellings

HOL = holiday lets and second homes

DL = losses due to clearance

81,88,01 denote years 1981, 1988, 2001

The forecast of "losses" to the existing dwelling stock in Lincolnshire was based on the arbitrary assumption that clearance would take place at an average annual rate half that which had occurred in preceding years.<sup>115</sup> In both Nottinghamshire and Leicestershire the forecasts were essentially clearance estimates supplied by the district councils.<sup>116</sup> In Derbyshire on the other hand reference was also made to local authority Housing Investment Programme submissions, which were considered the best available source of information regarding house condition. However the estimated number of unfit dwellings (as recorded under the pre-1989 definition) was considered excessively low, while a lack of basic amenities was thought no longer significant as an indicator of substandard condition.<sup>117</sup> The allowances made for "replacement dwellings" in the Derbyshire plan were therefore essentially the judgment of the county council.

One distinctive characteristic of the Derbyshire plan was the application of a 10% flexibility allowance to the overall forecasts of housing requirements. Having undertaken discussions with house-builders operating locally the county council acknowledged the importance they attached to site-specific assessments of demand, and their perceptions of the increasing unpopularity of large development sites with purchasers.<sup>118</sup> The flexibility allowance was therefore included so as to provide for a choice of sites and to allow for uncertainties in the component forecasts.<sup>119</sup>

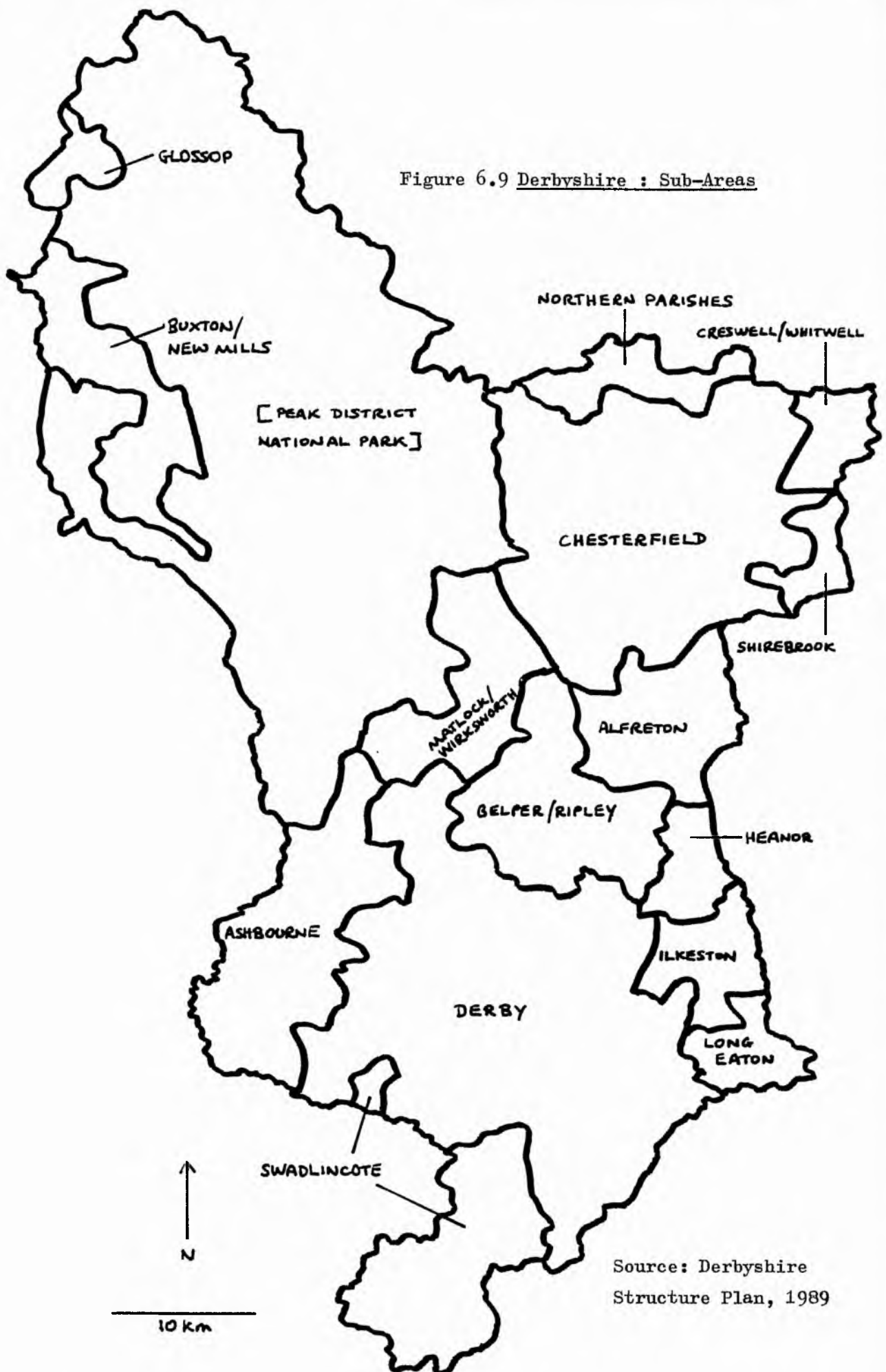
All counties acknowledge the uncertainties in forecasting. Planners in Lincolnshire pointed to the dangers in attaching spurious accuracy to forecasts, and emphasised that in adopting a less scientific approach to household projection the intention was to provide a broad-brush indication of likely change.<sup>120</sup> Although the Leicestershire alterations were only approved in 1987, work on producing a replacement Structure Plan was initiated in 1989. Similarly, the intention in Nottinghamshire is to undertake a further review of policies at the end of 1992.<sup>121</sup> (In choosing not to follow Derbyshire's approach, Nottinghamshire proposed that flexibility should be allowed for in implementing rather than in determining strategic policy, as in the 1980 Structure Plan.<sup>122</sup>)

The uncertainty associated with forecasting was a key factor in the approach to formulating migration assumptions in the Nottinghamshire Structure Plan Review. Indeed, while employment forecasts were a feature of the plans prepared by each county in the 1970's,<sup>123</sup> no such forecasts were made in the subsequent reviews. We shall therefore consider in detail the approaches used in determining migration assumptions and housing distribution in each county in turn.

#### The 1989 Derbyshire Replacement Structure Plan

"Demographic" forecasts of housing requirements were undertaken for each of fifteen Sub-Areas in the Derbyshire plan, provisions subsequently being converted into district allocations for policy purposes. The plan made reference to Coopers and Lybrand's recommendations regarding the definition of housing market areas, but it was accepted that as builders identify markets by house type and work to a shorter time-horizon than Structure Plans, their usefulness as forecasting units was limited.<sup>124</sup> The Sub-Areas defined (Figure 6.9) were therefore basically travel-to-work areas, which were thought to relate more satisfactorily to housing markets than the administrative districts.<sup>125</sup>

Figure 6.9 Derbyshire : Sub-Areas



Source: Derbyshire  
Structure Plan, 1989

In formulating housing provisions, three alternative scenarios were tested for each Sub-Area,<sup>126</sup> based on assumptions of:

- nil net migration;
- continuation of the 1971-81 migration trend (OPCS data);
- continuation of the 1981-86 migration trend (OPCS data);

The dwelling requirements arising from the scenarios were evaluated against an assessment of Sub-Area capacity, this being determined by:

- dwelling under construction in 1987
- plus dwellings with planning permission in 1987
- plus consolidation potential (windfalls and infill sites)
- plus potential extensions to the built-up area
- plus net conversion/change of use gains

In the Long Eaton and Northern Parishes Sub-Areas none of the scenarios were considered acceptable due to Green Belt constraints limiting the scope for "potential extensions to the built-up area". Here dwelling provision was therefore calculated on an explicitly capacity-determined basis.<sup>127</sup> In the other Sub-Areas the accepted migration assumptions reflected a range of factors, principally relating to economic potential.<sup>128</sup> In two Sub-Areas (Matlock/Wirksworth and Ashbourne) attractive environments were acknowledged as a factor determining migration and provision was made for net in-migration accordingly.<sup>129</sup> However it is important to note that in these and other Sub-Areas, environmental policies meant that the most "generous" of the three tested scenarios was not necessarily considered acceptable. In the Ilkeston Sub-Area for example a higher annual rate of net in-migration had occurred over the 1981-86 period than over the 1971-81 period. However the 1971-1981 trend was used in determining plan housing provision, since a continuation of the more recent trend would require the development of all land outside the Derby Green Belt.<sup>130</sup>

In the Shirebrook Sub-Area on the other hand, substantial net out-migration had occurred since 1971, and it was considered that the trend was unlikely to be reversed. Nevertheless the relatively "generous" scenario based on the nil net migration assumption was

accepted, with the acknowledgment that environmental improvements would be required if house-builders' perceptions of the area were to be altered.<sup>131</sup> A nil net migration assumption was also proposed for the Cresswell/Whitwell Sub-Area, in which similar circumstances applied.<sup>132</sup>

What conclusions can be drawn from a comparison of approaches in Derbyshire and Nottinghamshire? Environmental and Green Belt policies were factors influencing Sub-Area migration assumptions in each, but their influence was far greater in Derbyshire than in Nottinghamshire. In Nottinghamshire a more definite hierarchical approach was pursued whereby housing provisions in the Sub-Areas were calculated independent of each other and then distributed between constituent Sub-Divisions. This hierarchical forecasting procedure does not apply in the Derbyshire plan. Thus the effect of Green Belt constraints in particular Sub-Areas required an increase in provision to be made in adjacent Sub-Areas (Belper/Ripley and Chesterfield for example).

The approach in Nottinghamshire therefore constitutes a more concerted attempt to make provision for unconstrained housing demand at the Sub-Area level. (In this particular context we are referring to housing demand as indicated by "demographic" forecasts incorporating non-policy-constrained migration assumptions). One assumption implicit in Derbyshire's approach is that the functional travel-to-work areas on which its Sub-Areas were based will change as a result of plan policy. Moreover, since these Sub-Areas represented the county council's "best estimate" of housing market areas the assumption is that demand can be "deflected" between them. Thus the plan makes provision for housing in market areas which, on the county council's own assumptions, would not be the first choice preferred location of house-buyers. Nevertheless it should be noted that the Nottinghamshire review contained no discussion on the subject of housing market areas, and the Sub-Areas used here were larger and fewer in number : it is unlikely that purchasers would be indifferent between the urban and rural settlements in each.

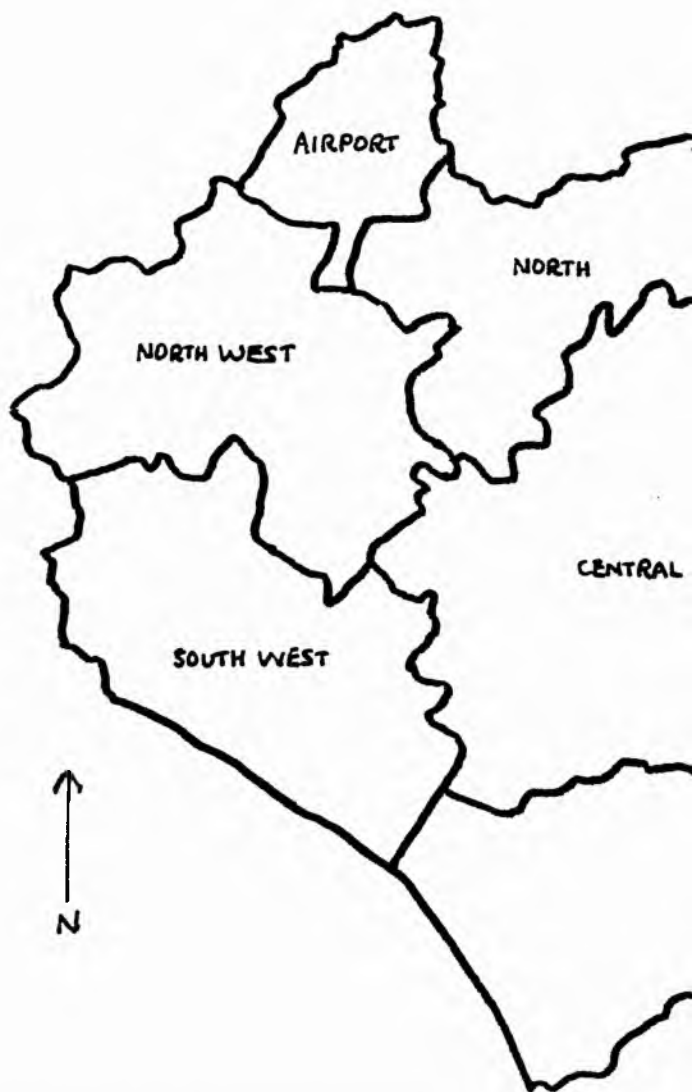
## The 1985 Rutland and Leicestershire Structure Plan Alterations

Like Nottinghamshire, Leicestershire adopted a hierarchical approach in determining strategic migration assumptions and housing distribution. However whereas the forecasting hierarchy in Nottinghamshire was established at the travel-to-work Sub-Area level, with the forecast requirements of each being distributed to constituent urban and rural parts, the hierarchy in Leicestershire was established at the county level. Having forecast migration across the county boundary, the county housing requirement was calculated and distributed between the Rutland and the Leicestershire plan areas. The Leicestershire plan area requirement was subsequently distributed between seven constituent Sub-Areas (again representing travel-to-work areas), shown in Figure 6.10. At the Secretary of State's request references to Sub-Areas were subsequently deleted and the housing policies expressed by district council areas.<sup>133</sup>

Housing requirements in the county as a whole were assessed on the basis of a nil net migration assumption.<sup>134</sup> The assumption was made in the context of a substantial decline in net in-migration in the late 1970's, as revealed by OPCS data. The county council considered that the relatively high net inflow during the early part of the decade was the result of relative prosperity, pleasant environments, and lower house prices and cost of living; the subsequent decline was attributed to increases in unemployment.<sup>135</sup>

The forecast reflected the county's view that economic and employment prospects were unlikely to lead to net in-migration, whilst it remained a "fundamental policy objective" that sufficient housing provision be made to accommodate a natural increase in the population.<sup>136</sup> Evidence from various sources was presented at Examination in Public endorsing the county's view that migration flows were broadly in balance in the early 1980's.<sup>137</sup>

Figure 6.10 Leicestershire : Sub-Areas





Source: Leicestershire Structure Plan  
Alteration No. 2, 1985

Nil net migration forecasts of housing requirements for Rutland and each of the Leicestershire plan Sub-Areas served as a benchmark against which to develop alternative strategies for distributing the county provision.<sup>138</sup> The county council considered there was no evidence of a need to depart from the Rutland strategy, and the nil net migration forecast was used in determining housing provision here.<sup>139</sup> However in the Leicestershire plan area five options were considered in devising a strategy:<sup>140</sup>

- "urban focus": concentration of development on the periphery of Leicester and other urban areas;
- "balance": a more even distribution between urban and rural areas;
- "dispersal": emphasis on a greater number of locations, countywide;
- "pressured areas": growth in areas of development pressure;
- "North-West Quadrant": emphasis in the North, North-West and Airport Sub-Areas.

The strategy of the 1976 Leicestershire Structure Plan had been one of "urban focus".<sup>141</sup> However in the 1985 alteration the county council considered that the strategy should focus on those areas in need of major efforts towards economic regeneration and in which industrial land allocations could help realise economic potential.<sup>142</sup> The preferred option was therefore one of emphasis in the North-West Quadrant,<sup>143</sup> although in determining housing proposals the strategy had to be modified due to the high level of past commitments.<sup>144</sup>

Although rejected as plan strategy, the county council considered a demand-orientated approach, represented by the "pressured areas" option.<sup>145</sup> This was formulated from a consideration of various factors, notably:

- the views of builders, articulated through a liaison forum meeting every four months;
- land availability schedules and the findings of joint studies conducted by the districts and the House-Builders' Federation;
- a survey of estate agents' views;
- a countywide survey of the occupants of new dwellings, undertaken in 1979-80.

Despite not being accepted in full, various elements of this approach did make a contribution to determining the distribution ultimately proposed. Elements accepted included the importance of providing a choice of locations in the Central Sub-Area, additional opportunities to the east of Leicester, and a restriction on large scale developments.<sup>146</sup> The final distribution therefore involved a reduction in provision in the North-West Quadrant and an increase to the south, with a more balanced approach to distribution between the urban and rural parts of the Central Sub-Area.<sup>147</sup>

However acceptance of elements of the "pressured areas" option had to be weighted against other factors assuming significance in the consultation process, notably provision for inner city regeneration and an avoidance of coalescence.<sup>148</sup> While no Green Belt was proposed, various constraints were attached to parts of the Leicester periphery in order to prevent urban sprawl, and a dwelling provision implying net out-migration from the Sub-Area was proposed.<sup>149</sup>

An additional factor which assumed significance at the consultation stage was the view of the district councils that little allowance had been made for flexibility and local judgment in determining housing locations.<sup>150</sup> This was accepted by the county council. The forecast of housing required on land not already committed for development was about 12,000 dwellings.<sup>151</sup> In revised policies the county council indicated "strategic locations" in which provision would be made for some 7,000 of these dwellings. These would be developments in excess of 150 dwellings. The remaining 5,000 dwellings would be allocated in "non-strategic" locations to be determined by the district councils.<sup>152</sup>

These provisions imply much greater flexibility for interpretation than those of the Nottinghamshire Structure Plan Review. However comparisons are not strictly valid since the amount of land required for future allocation in Local Plans in Nottinghamshire was much lower, and a broad consensus existed between county and districts regarding the propriety of urban concentration. Given this consensus the inclusion of housing location policies in the review would provide

additional weight to development control decisions taken by the districts. In any case, the district councils in Leicestershire were not given a "free hand" in determining "non-strategic" allocations since these still had to conform to broad settlement policies.<sup>153</sup>

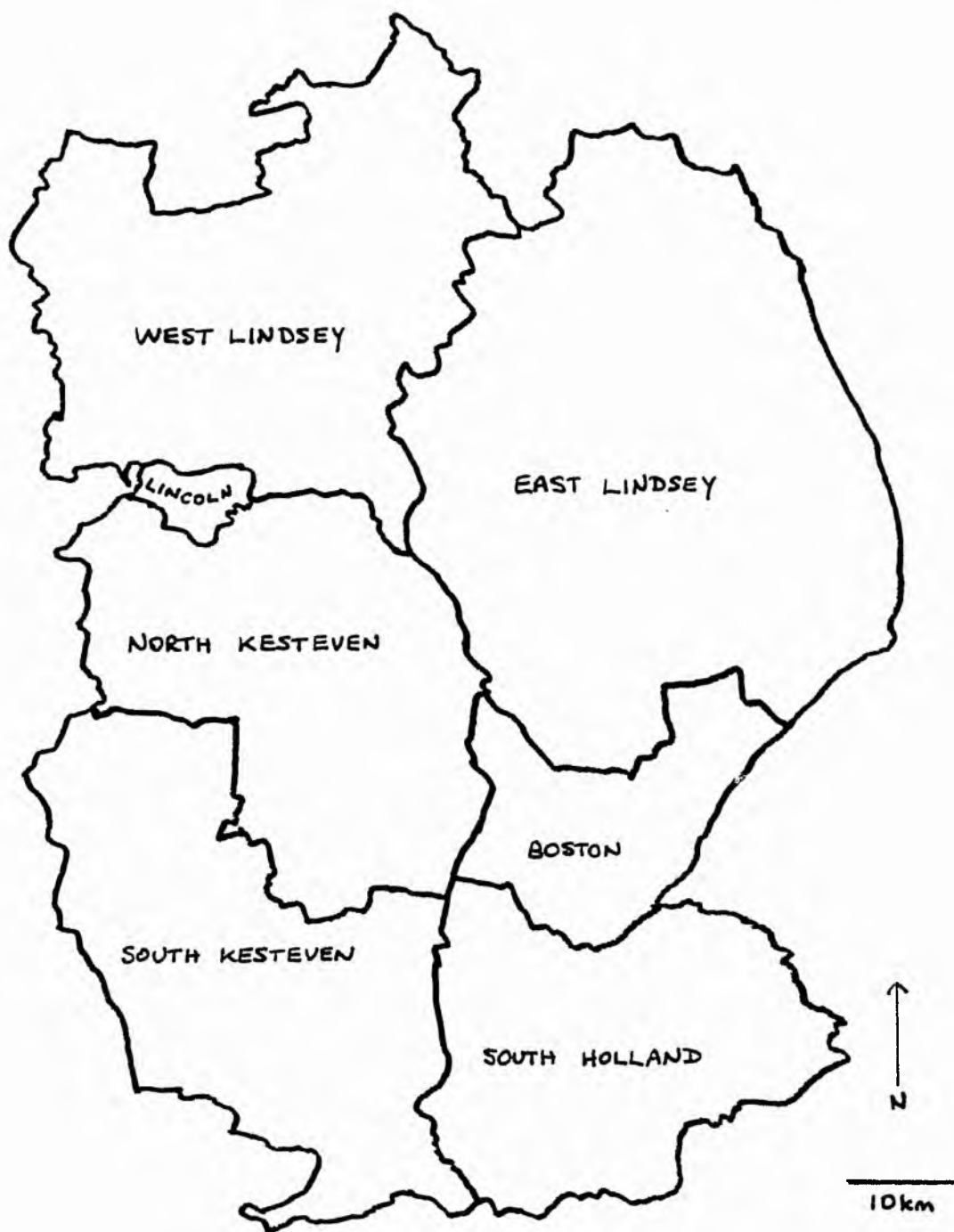
#### The 1990 Lincolnshire Structure Plan Alteration

The Lincolnshire Structure Plan Alteration was published for consultation purposes in February 1990. As in Leicestershire, the policies were formulated in the context of a forecasting hierarchy established at the county level, the county housing requirement subsequently being distributed between the seven district areas shown in Figure 6.11.

The strategy of the 1981 Lincolnshire Structure Plan had been growth-orientated,<sup>154</sup> and Nottinghamshire had originally expressed concern that its provisions were excessive, jeopardising the growth potential of the neighbouring areas of Newark and East Bassetlaw.<sup>155</sup> Lincolnshire on the other hand had taken the view that competition should be accepted,<sup>156</sup> despite claims that this would be wasteful in terms of an over-provision of infrastructure at a time of limited financial resources.<sup>157</sup> In fact as we acknowledged earlier, both Newark and East Bassetlaw experienced a considerable increase in population in the 1980's.

The strategy of the 1990 Lincolnshire alteration was also one of growth. The county council took the view that Lincolnshire "has been a backwater too long"<sup>158</sup> and that population growth and the associated housing development should be encouraged.<sup>159</sup> The migration forecast was determined on the basis that Lincolnshire had been "discovered" in the late 1980's, that it was becoming increasingly accessible as a result of improvements in rail and road networks, and that the southern parts were being marketed by builders as part of the outer South-East region.<sup>160</sup>

Figure 6.11 Lincolnshire : Districts



Source: Lincolnshire Structure Plan, 1979

The county council made provision for a level of net in-migration which it considered consistent with the growth strategy, yet capable of being accommodated without adverse environmental effects, given the county's large size and its low population density.<sup>161</sup> The forecast was not "employment-led". Rather, it was assumed that in-migration would stimulate additional job creation, particularly in the service sector.<sup>162</sup>

National Health Service Central Register data indicates that net migration into the county had remained between 3,000 and 4,000 persons per annum in the early 1980's.<sup>163</sup> The level of net in-migration subsequently rose to over 9,000 in 1987-88 (April to April),<sup>164</sup> which the county attributed to an increase in house price differentials with the South-East.<sup>165</sup> The county council considered that this high level of in-migration was unlikely to continue and provision was made for a decline over the 1988-2001 period (April to April), with an implied annual average of some 7,800 per annum.<sup>166</sup>

The plan alteration acknowledged that actual in-migration in the first year of the forecasting period was under 6,000 - much lower than had been anticipated - but this was attributed to very high mortgage rates rather than the start of a long-term trend.<sup>167</sup> In fact NHSCR data suggests a subsequent fall to 4,000 in the second year, and the population projections used in determining local authority service provision were later revised in a downward direction.<sup>168</sup>

However for political reasons it was considered appropriate that provision should be made to meet the initial forecast of housing requirements, the market being left to determine the actual level of migration within this parameter.<sup>169</sup> At the time of writing, the county council was considering representations received regarding its draft policies, and the allowance for migration may subsequently be reduced. However the county council claimed broad support amongst all the districts for its growth strategy, although some concern had been expressed at the local settlement level where the implications are more tangible.<sup>170</sup> At the time of writing the county's intention was not to adjust its forecast at all,<sup>171</sup> and if the increase in population and housing does not occur in the period to 2001, the intention is simply to extend the time-horizon of the policies.<sup>172</sup>

The county housing requirement was distributed between the district council areas largely in accordance with the distribution of provisions in the existing Structure Plan.<sup>173</sup> In this plan, employment forecasts had been used in determining local migration assumptions,<sup>174</sup> and housing requirements had been forecast at the district and employment office levels. The districts of East Lindsey, Lincoln and South Kesteven were assumed to experience high levels of net in-migration,<sup>175</sup> and each of these districts accounted for a high proportion of the housing provision in the county as a whole.<sup>176</sup>

The distribution in the 1990 alteration was adjusted to reflect the absolute constraint on development within the administrative boundaries of Lincoln,<sup>127</sup> and the proposed provisions reflected the view that the whole county should benefit from growth. It was considered inappropriate to concentrate or channel growth into particular areas.<sup>178</sup> However this raises an issue in that the factors determining the recent and forecast trend of migration at the county level differ from those on which the earlier plan was based. South Holland and South Kesteven could be expected to attract more interest from prospective in-migrants given their proximity to the South-East, while the county council acknowledged that the more remote coastal district of East Lindsey was a popular destination for retirement moves.<sup>179</sup>

Small adjustments were made to the distribution to reflect changes in migration and building rates in these districts.<sup>180</sup> Nevertheless the number of completions in East Lindsey in 1988 was higher than in any year since 1976, and well above the average annual building rate implied by the proposed provision.<sup>181</sup> On the other hand the provision made in the county and in each district (excluding Lincoln) implied an average building rate higher than the average over the 1976-88 period.<sup>182</sup> Moreover in South Kesteven, which may be considered particularly attractive as a commuter base, given accessibility to the East Coast Main Line at Grantham, the provision implied a particularly high building rate, both in comparison with the past average, and in comparison with that proposed for other districts.<sup>183</sup>

The three tier hierarchy used in distributing housing within the district areas in the 1981 plan was extended to four tiers in the 1990 draft alteration. While the majority of the provision in the 1981 plan was to be allocated in "Towns" and "Main Villages", the county council had encouraged the districts to consider appropriate development in "other" settlements.<sup>184</sup> The county considered that the strategy had worked well, and designated a large number of "Minor Villages" in the plan alteration in which development of an appropriate scale would be encouraged.<sup>185</sup>

The alteration provided for a slight shift in emphasis away from "Towns" in order to maximise development opportunities for builders and help sustain the smaller settlements.<sup>186</sup> Policies quantified the provision to be made in "Towns" and some of the "Main Villages", although these were not intended as fixed ceilings. Nevertheless, while the county sought to provide the districts with considerable flexibility, the quantified provisions were consciously intended as guidelines so as to ensure a broad spread of development - a central theme of the overall strategy.

## 6.9 CONCLUSIONS

As this is the penultimate chapter of the thesis we shall limit this concluding section to a brief summary of main points covered. We shall return to consider the detailed findings of the research into current practice in the final chapter.

In the first part of the chapter we studied in detail the approach used in the Nottinghamshire Structure Plan Review. We discussed in detail the method of population projection, paying particular attention to the contentious issues of handling students in forecasting exercises and formulating migration assumptions. We discussed alternative assumptions, and noted that while the county assumed that population change would be largely (though not exclusively) "employment-led", the review differed from the existing 1980 plan in not including employment forecasts. Although the county council did not explicitly refer to Coopers and Lybrand's demand indicators, we noted the use of house price information both in

determining strategic migration assumptions and in responding to the representations made by the House-Builders' Federation.

We proceeded to discuss the use of Department of Environment headship rates and the assumptions made in forecasting vacancy rates. We studied the assumptions made in forecasting "losses" to the dwelling stock - the third critical area of divergence between the HBF and the county council with regard to strategic housing requirements. We discussed the effects of prior commitments of housing land, and the changes made to provisions in the light of consultations. Little change was made at the strategic (Sub-Area) level, because the consultative draft proposals largely coincided with those of the districts. The HBF was unsuccessful in convincing the county council that the forecasts in the review should be revised.

The distribution of housing required in excess of prior commitments reflected the strategy of concentration in the main built-up areas. This strategy was largely based on objectives of maximising the potential of these areas, and conserving land and environments elsewhere. We noted that the county council accepted that this distribution would be contrary to that implied by a consideration of housing demand - although the county did not itself conduct a demand study.

Our study of Derbyshire, Leicestershire and Lincolnshire confirmed the use of DoE headship rates in forecasting housing requirements, but revealed a number of differences in methods and policy - relating principally to migration assumptions and the distribution of housing provision. As in Nottinghamshire, future migration into Leicestershire was largely assumed to be employment-led; in Lincolnshire it was assumed to be housing-led. In Derbyshire household projections and "demographic" forecasts of requirements were undertaken for relatively small spatial units, and incorporated migration assumptions determined with reference to a variety of factors.

The Derbyshire plan made provision for new housing on extensions to the existing main urban areas. In Leicestershire district councils were afforded some flexibility in interpretation, although the existing hierarchy of settlements was to be maintained. In Lincolnshire the existing hierarchy was also to be maintained, but the particular characteristics of the county contributed to the county council proposing and emphasising a more dispersed pattern of development. These and other considerations will be taken up again in our concluding chapter.

## Notes to Chapter Six

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3. Ibid.
4. Nottinghamshire County Council, Nottinghamshire Structure Plan Second Monitoring Report (West Bridgford : Nottinghamshire County Council, 1985)
5. Report and Minutes to Nottinghamshire Environment Committee Meeting, 10/7/85
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8. Nottinghamshire County Council, Consultative Draft (1989), para 1.1
9. Nottinghamshire County Council, "Nottinghamshire Replacement Structure Plan Examination in Public, Supplementary Statement No 1, Matter 1 (i) Housing Provision" (paper submitted to Examination in Public, 1990), para 14
10. "East Midlands Regional Planning Guidance, Draft Issues Paper" (paper prepared by county councils in the East Midlands and the Peak District National Park Planning Board, submitted to Department of Environment, 1989)
11. "Current practice" in Leicestershire refers to the county council's 1985 proposals. At the time of writing, preliminary draft proposals arising from a subsequent policy review had not been considered by council members, and information relating to the review was not available for study. Note also that planning in the Peak District National Park is not the responsibility of Derbyshire County Council and is not considered in the chapter.
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15. Ibid., para 4.1 (viii)
16. Ibid., para 4.2
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25. See for example, Nottinghamshire County Council, Nottinghamshire Structure Plan Review Submission Draft Technical Report No.3 Employment Land (West Bridgford : Nottinghamshire County Council, 1990), para 3.2
26. Nottinghamshire County Council, Consultative Draft (1989), para 11.8
27. Ibid., see para 1.57
28. Ibid., paras 11.16, 12.11, 12.15, 12.21, 13.21, 13.22, 14.24, 14.25, 14.26, 15.16, 15.17
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30. Ibid., para 6.7

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38. Report and Minutes to Nottinghamshire Environment Committee Meeting, 6/9/89
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42. Ibid.  
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53. Ibid., Table 2.7
54. See joint statement by House-Builders' Federation and Nottinghamshire County Council in:  
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55. Nottinghamshire County Council, SDTR2 Housing (1990), Table 2.5
56. See Nottinghamshire County Council, "EIP Supplementary Statement No1", para 9
57. Ibid.
58. See Nottinghamshire County Council, SDTR2 Housing (1990), Tables 2.10, 2.11
59. Ibid., para 2.43
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62. House-Builders' Federation, "Comments on the Draft Nottinghamshire Replacement Structure Plan", paras 6.8-6.9
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64. Mansfield District Council, Housing Investment Programme (HIP1) submissions to DoE for 1986 and 1989, showing position at 1st April each year (copies held by local housing authority)

65. Ashfield District Council, Housing Investment Programme (HIP1) submission to DoE for 1986, showing position at 1st April (copy held by local housing authority)
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67. Department of Environment, Local Government and Housing Act 1989. Area Renewal, Unfitness, Slum Clearance and Enforcement Action, Circular 6/90 (London : HMSO, 1990), para 27
68. Ibid., para 63
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70. Ibid., para 17
71. Nottinghamshire County Council, SDTR2 Housing (1990), Table 2.11
72. Nottinghamshire County Council, Explanatory Memorandum (1990) Policy 1/2
73. Ibid., para 3.11
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84. Ibid., Tables 3.5, 3.6, 3.7, 3.8, 3.9

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92. Nottinghamshire County Council, "EIP Supplementary Statement No2", para 40
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94. Nottinghamshire County Council, Explanatory Memorandum (1990), Tables 3.7, 3.8, 3.9
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101. Nottinghamshire County Council, SDTR2 Housing (1990), paras 6.11-6.13
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144. Ibid., para 2.49
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146. Leicestershire County Council, Explanatory Memorandum (1985), para 2.50
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150. Leicestershire County Council, Explanatory Memorandum (1985), para 2.50
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169. Ibid.
170. Ibid.
171. Ibid.
172. Lincolnshire County Council, Explanatory Memorandum (1990), para 4.19
173. Ibid., para 4.5
174. Lincolnshire County Council, Written Statement (1979), para 6.67
175. Ibid., Table 37
176. Ibid., para 6.85, Table 36
177. Lincolnshire County Council, Explanatory Memorandum (1990), para 4.5
178. Ibid., para 4.6
179. Ibid
180. Ibid., para 4.5
181. Ibid., see table in para 4.6 (Data from DoE's Local Housing Statistics)

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183. Ibid
184. Ibid., para 4.8
185. Ibid., Policy 6A
186. Ibid., para 4.12

## 7. CONCLUSIONS

We are now in a position to bring together the major findings of the research and to draw overall conclusions. However before we do so we should summarise the main topics studied.

In Chapter Two we considered methods of population projection, giving particular attention to variant cohort survival models (including those of OPCS) and employment-led approaches. We studied the data and methods used in forecasting component elements : mortality, fertility and migration in the case of cohort survival models; employment and the parameters linking employment and population in the case of employment-led approaches. We proceeded by discussing policy interdependence and the capacity-led methods which have been used in practice to determine provisions in areas of development restraint.

In Chapter Three we considered methods of household projection and approaches to calculating housing requirements over a plan period. We discussed in detail issues arising in the headship rate method of projection, the development of more sophisticated models of headship rate extrapolation, and the strengths and weaknesses of extrapolative methods. We commented upon econometric and dynamic methods of headship rate projection, and we discussed the adequacy of using census-defined households as analytical units and considered alternative analytical frameworks. We proceeded by discussing the difficulties encountered in estimating existing numbers of dwellings, making allowances for vacant dwellings, and assessing the contribution which the existing stock could be expected to make to housing a future population.

In Chapter Four we undertook a detailed evaluation of Coopers and Lybrand's five recommended indicators of housing demand, and we commented on the delineation of housing market areas. We explicitly addressed issues in the collection and organisation of data, how the indicators would be constructed, and the different ways in which they could be interpreted. We also considered ways in which the information used in Coopers and Lybrand's indicators could be used in ways other than had been recommended.

In Chapter Five we considered the formulation and implementation of the housing policies of the existing Nottinghamshire Structure Plan. We discussed the techniques and assumptions on which the plan's housing provisions were based, and the way in which Local Plan policies related to these provisions. We considered the extent to which the scale of development taking place reflected that envisaged in the Structure Plan, and the responses of county and districts as it became apparent that the plan was no longer providing an adequate strategic framework.

In Chapter Six we undertook a study of current practice in structure planning in Nottinghamshire and neighbouring counties of the East Midlands.<sup>1</sup> We discussed in detail the forecasts of the Nottinghamshire Structure Plan Review and the steps taken in determining the distribution of housing provision. We considered the ongoing relationship with the district councils, the issues assuming significance in consultations and at Examination in Public, and the alternative assumptions and proposals of the House-Builders' Federation. We identified and discussed key similarities and differences in approach in Derbyshire, Leicestershire and Lincolnshire.

#### Population Projection and Planning Practice

The most distinctive feature of the recent forecasts of housing requirements in the four counties is the move away from the more "theoretical" approach of assessing future population change on the basis of forecasts of employment. This can be attributed partly to the uncertainty attached to these forecasts (as revealed by the events of the 1980's), and partly to the increasing recognition that inter-county migration may be determined by other factors besides employment. Indeed in Lincolnshire it is accepted that in-migration, at least in the short and medium term, will be "housing-led".

The more recent forecasts of housing requirements rely exclusively on single region cohort survival models. However the forecasts are not pure demographic projections, since the migration inputs used in these models are not determined solely by the past trend. While observed patterns do constitute an important consideration in the forecasts of

each county, the choice of "accepted" migration assumptions is an argued one, taking account of a variety of factors. The task of quantification is therefore essentially one of judgment. The forecasting of migration in this way is preferable to an unargued acceptance of the past trend: the past trend is a useful guide, but it may not be realistic to assume that determining factors will exert the same influence in the future as in the past.

The same comments are of course equally applicable to trend-based projections of employment, and given the amount of time involved in forecasting this activity and the uncertainties with which it is associated, the use of more pragmatic approaches to migration is only to be expected. Any forecasting system, however sophisticated, relies at some point on the extrapolation of past trends and/or educated judgment. However it is the nature of these judgments with which we have to be concerned : we must reconsider PEIDA's observation (referred to in Chapter Two) that local authority forecasts tend to mix social, economic, and policy factors in ways which can be difficult to disentangle.

We discussed how "unconstrained" development scenarios based on assessments of economic potential were evaluated against environmental considerations in the Nottinghamshire Structure Plan Review in Chapter Six. However since the county council does not publish best estimates of non-policy-constrained migration assumptions we cannot quantify the impact of such considerations on the housing policies. In fact there is little evidence to suggest that the influence of these factors was substantial. In the South Nottinghamshire Sub-Area for example the assumption of nil net migration stemmed not from an objection to making provision for additional greenfield development per se : rather it reflected a lack of certainty regarding the validity of assuming that a recent short-term trend of in-migration would continue. If provision for substantial new development were to be made and only a modest

amount was actually built, the over-provision of land could lead to a more dispersed pattern of new housing, jeopardising the policies of concentrating development and restricting sprawl. (These policies are, of course, a separate matter for consideration).

In Chapter Two we discussed the view that strategic planning policies may be characterised by an overtly "political" input. A brief survey of approaches in the South-East and a more considered assessment of Hampshire's approach lent some weight to the proposition that counties may be unwilling to make provision for an increase in population which might otherwise be expected to occur. However our study of the East Midlands suggests that here "political" considerations have if anything resulted in unduly generous assumptions being made regarding population growth at broad spatial scales.

This is particularly true in Lincolnshire where both county and district councils are committed to an aggressive growth strategy. In Leicestershire there is a policy objective that no net out-migration should occur, despite uncertainties regarding economic prospects when the forecasts were made. In Derbyshire population growth is constrained in some Sub-Areas, but this is offset by increasing the migration assumptions for neighbouring areas. In Nottinghamshire it is not the view of the county council that population should (or could) be channelled in this way. There is no intention that population growth should be "diverted" from South Nottinghamshire to West Nottinghamshire for example.<sup>2</sup> There is a commitment to undertake an early review of current proposals, and the South Nottinghamshire migration assumption will be revised if it proves to be unduly cautious. In this context the assumption that West Nottinghamshire will experience nil net migration is doubtful given the recent economic performance of the Sub-Area. The assumption may be attributed to outstanding residential commitments here, and the implications for "confidence" which could result from a public acknowledgement that out-migration may occur.<sup>3</sup>

Aside from these issues of policy the case-study of Nottinghamshire also highlighted technical issues relating to the detailed aspects of methods of population projection and the quality of input data. In

Chapter Two we acknowledged that official (OPCS) mortality and fertility statistics could generally be regarded as comprehensive in coverage. However we also commented on the relative inadequacy of migration data and the associated difficulties in producing population estimates for inter-censal years. The discrepancies between migration trends for Nottinghamshire as indicated by OPCS figures and those revealed by National Health Service Central Register data on which these figures are supposedly based are substantial and represent a major source for concern.

Past migration patterns are important as a reference point in determining and debating Structure Plan migration assumptions. (Incidentally, it is worthy of note that in making representations the House-Builders' Federation selectively cited the source which gave higher levels of in-migration into Nottinghamshire in particular years, whereas the county council consistently used OPCS figures). There are also implications regarding the validity of the OPCS Mid-Year Estimates as a base from which to undertake projections, and also as denominators in mortality and fertility rates. It is clear that much more information needs to be made available by OPCS regarding their calculations, and improving the quality of migration statistics must be made a priority.

#### Households, Housing Requirements and Planning Practice

Our study in Chapter Three indicated that age was an important factor accounting for (although not necessarily determining) variations in the propensity of individuals to head households. It was therefore accepted that methods of household projection involving the application of specific headship rates were preferable to simple average household size methods. However as indicated in our study of the Nottinghamshire Structure Plan Review, the validity of household projections made using specific headship rate methods will depend on the reliability of input disaggregate population projections. Notwithstanding the uncertainties associated with estimating the size of an existing population, procedures for handling students and other "atypical" groups require a detailed consideration of the definitions on which these estimates are

based. Different procedures used in this respect and alternative approaches to disaggregating exogenous forecasts of net migration will lead to different age-structures and hence different forecasts of housing requirements.

The advances in methods used by the Department of Environment to extrapolate headship rates should not be understated. Much progress has been made since the 1950's and 1960's and the wide use of the Department's projections is testament to their authority. They have made a substantial contribution to local forecasting exercises and the determination of housing policies in development plans, and will continue to do so, at least in the short term.

Nevertheless the respect afforded to these projections largely reflects the present lack of any satisfactory alternative. Their use by local authorities and the House-Builders' Federation alike means that they are largely treated as inviolate and bestowed with a degree of credibility which arguably they do not warrant. There is no reason why they should be accepted in local forecasts any more than the migration assumptions made by OPCS. While OPCS migration forecasts may be referred to at Examinations in Public and in documentation accompanying plans they are not generally considered sufficiently sensitive to local social and economic (and policy) factors. However the same view may be taken of the DoE's headship rates. The migration assumptions underpinning Structure Plans are always a subject for debate and discussion, both in the initial stages of forecasting and policy formulation, and in the consultation stages. Headship rates on the other hand are not subject to anything approaching this intense level of scrutiny.

There are probably two main reasons for this. Firstly, while migration data is highly inadequate, inter-censal headship data at sub-national levels is all but non-existent. This tends to preclude any meaningful discussion regarding inter-censal trends. Secondly, the emphasis of the planning system on considerations of land-use, the spatial relationship between "key activities", and the distribution of development, inevitably focus attention on migration. Hopefully the

work recently initiated at the DoE into dynamic and econometric methods of headship rate projection will serve to rekindle debate in an area which is crucial to the assessment of housing requirements, but which is largely neglected in the Structure Plan process.

In Chapter Three we discussed the "stock/households" method of calculating housing requirements - deducting a base year estimate of dwellings from a projection of households. This method, and the alternative "household change" method are both subject to an element of uncertainty due to a lack of reliable data with which to estimate dwellings and households in an inter-censal plan base year. Of greater significance are forecasts of vacancy rates and "losses" to the existing dwelling stock. These are crucial elements in an assessment of housing requirements since it is here that assumptions may be incorporated regarding the adequacy of existing dwellings, not only in terms of their condition but also in terms of their tenure.

The Structure Plans in the East Midlands rely heavily on clearance estimates and census-derived vacancy allowances. The implicit assumption is that substandard dwellings not proposed for clearance will be renovated to an "acceptable" standard (not explicitly defined in any of the plans), while in all other respects the characteristics of existing dwellings will match those sought by future households. Although there are "limitations in method" regarding assessments of the adequacy of existing dwellings in terms of their type and tenure characteristics, the lack of discussion both in plans and in the general literature is disappointing. Educated judgment is used in areas such as migration forecasting and there is no reason why such judgment should not have a role here.

In very general terms, the balancing of housing demand and other factors in the East Midlands<sup>4</sup> means making provision for an unconstrained increase in households at the county level, with the location of new housing determined in accordance with prior commitments and other policy objectives. That is to say, "non-demand" factors assume increasing significance at progressively local levels.

In Nottinghamshire attempts are made to make provision for an unconstrained increase in households not only at the county level but also at the level of the five travel-to-work Sub-Areas. For example, the county council could have sought to limit future housing development in the environmentally sensitive South Nottinghamshire Sub-Area by assuming that all prior commitments in West Nottinghamshire would be developed and would make a contribution to meeting the increase forecast for Nottinghamshire as a whole. The county council chose not to do this.

In each of the counties, policies favour development in and around existing settlements. However while in each case the majority of housing is to be concentrated in and around the larger towns, the extent to which development is to be concentrated in this way varies. In Lincolnshire for example, provision is made for a relatively dispersed pattern of development, both to maximise opportunities for builders and to sustain rural communities. In Nottinghamshire on the other hand the county council indicated that future Local Plan allocations would be concentrated in a small number of locations, although prior commitments would be significant in determining the overall distribution of new development.

#### Indicators of Housing Demand and Planning Practice

In Chapter Four we studied in detail each of Coopers and Lybrand's five recommended indicators of housing demand. A number of local authorities - notably Hampshire, Hertfordshire, Wiltshire and Cheshire - have applied various indicators in studies of housing markets in their counties, and Hampshire's study is of particular note for its attempted application of those indicators specifically proposed by Coopers and Lybrand. However these indicators do not show trends in demand as such since they are all influenced by supply-side factors. The contribution they could make to forward planning is extremely limited, simply because they relate to the interaction of market forces at specific points in time. Given a more incremental short-term approach to planning their usefulness would still be open to question, on account of the intense difficulties of interpretation and the

problems of translating the results into quantified land allocation policies. Even if policies were to be expressed as a range rather than as precise figures, the same problems would apply in assessing the limits to such a range.

These comments aside there are considerable difficulties in organising the data and constructing the indicators. For example, the study of house price movements may quite properly be regarded as a central element in developing an understanding of the operation of housing markets. However the task of identifying actual trends in house price is beset with difficulties. Different sources of data may suggest widely differing trends, analyses of changes in "average house price" (itself a dubious concept) may give misleading results, while disaggregation at local housing market area levels may not be feasible if sample sizes are small.

Coopers and Lybrand's apparent blanket rejection of population projections as proxies for demand ~~appears~~ unjustified given the unsatisfactory nature of their proposed alternatives. They pay scant attention to demand function factors, and while they suggest that local authorities should be able to demonstrate how indicators have contributed to formulating plan policies they give no explicit consideration as to how this could be achieved in an operational sense. Their statement that housing demand should be considered alongside "other factors ... such as changes in average household size"<sup>5</sup> displays a fundamental misunderstanding with regard to forecasting methods. Such changes constitute an integral part of existing techniques for assessing housing requirements, rather than a separate factor to be considered in balancing demand against other planning objectives. As indicated above, the way forward is to develop new methods for forecasting changes in average household size and headship rates.

Having made these points it should be emphasised that many county councils monitor house price data, statistics connected with planning applications, and information of various kinds supplied by estate agents and builders. The key issue is how to make use of the information which is available. Interviews with officers in county planning authorities, studies of Structure Plans, and surveys of

documents submitted by the House-Builders' Federation to county councils and Examinations in Public, all suggest that the main impact of Coopers and Lybrand's work has been to raise the level of "consciousness" regarding demand as a planning consideration. The five indicators actually recommended by Coopers and Lybrand have themselves rarely (if ever) been used in Structure Plan policy formulation or in representations made by the HBF.

Nevertheless studies of the Nottinghamshire Structure Plan Review and strategic plans of neighbouring counties do reveal that the information used in the construction of Coopers and Lybrand's indicators has made a (limited) contribution to policy. Nottinghamshire and Lincolnshire both took account of higher house prices in the South-East and builders' marketing strategies in making assumptions of in-migration. In Leicestershire information from planning applications and various surveys contributed to one of a number of strategic policy options. Although not accepted in full, elements of this option were incorporated in the strategy ultimately proposed. As part of the survey work in connection with the county's present review, information from estate agents will be used as a migration indicator,<sup>6</sup> although at the time of writing no final decision had been taken regarding its detailed construction. In formulating housing policies in Derbyshire the county council took into account builders' views that large developments were becoming increasingly unpopular, and a flexibility allowance was made so as to provide a choice of sites.

#### Housing Demand and the Future of Strategic Planning

In Chapter Five we discussed the relationship between the Nottinghamshire Structure Plan and the policies subsequently formulated by the district councils and included in Local Plans. Where statutory Local Plans were prepared, and the process of adoption initiated and completed soon after the approval of the Structure Plan, their housing policies generally related closely to those of the county council in terms of scale and location of provision, although a number of disagreements were evident regarding particular details. This close relationship is much less apparent in non-statutory planning documents

and in Local Plans prepared and certified as being in conformity in later years. Moreover it is clear that the district councils continued to grant planning permission on sites not allocated in their plans, although the extent to which the locations of these sites were at variance with Structure Plan policy was itself dependent on the planning issues faced in the district in question. Thus the Structure Plan policy of concentrating development in the built-up areas was pursued more vigorously in the Green Belt districts than in the district of Bassetlaw.

It is clear that the Structure Plan policies were implemented with a considerable degree of flexibility. Moreover, while two of the principal functions of a Structure Plan are to state broad policies for future development and to provide a framework for Local Plans it is clear that the policies of the Structure Plan Review were influenced by prior commitments of housing land. The case-studies also revealed an increasing willingness on the part of county councils to engage in frequent reviews of their plans. "Limitations in method" notwithstanding, this means that strategic planning in the East Midlands will, as a matter of course, become increasingly responsive to unforeseen changes in housing demand. It can in no way be said that the Structure Plans here are seen as "blueprints" for the future.

This does not mean that there is no longer a role for planning at the county level. Structure Plans have a particularly important co-ordinative function in ensuring that sufficient provision is made for housing in constituent district areas. Thus strategic planning is not necessarily diminished in value. Rather, the nature of strategic planning is changing, with the importance of the Structure Plan role in housing land a function of the particular planning issues in the area under consideration, and the division of responsibilities between the district councils within this area.

It is the responsibility of planning authorities to balance housing demand against a range of considerations, and Nottinghamshire and neighbouring counties have adopted a responsible approach to assessing the scale of future housing requirements. Although "non-demand" policy factors are significant in determining the distribution of housing provision in Structure Plans, flexibility is being built in to the planning process in a variety of ways. It would not be appropriate to make firm conclusions regarding the determination of housing policies in the South-East and other regions, since we have not had the opportunity to interrogate these in the same degree of detail. However there is no evidence from our study of Nottinghamshire and its neighbours to suggest that any fundamental changes to the planning system would be justified or desirable.

#### Themes for Future Research

1. There is a need to develop techniques in a number of areas, most notably in connection with:
  - (i) The relationship between migratory and commuting decisions and preferences.
  - (ii) Alternative approaches to household projection. Emphasis should be placed upon econometric and dynamic methods of headship rate projection, since the opportunities for applying the theoretically more satisfactory Minimal Household Unit approach are hampered by data considerations.
  - (iii) Forecasting requirements for "replacement dwellings".
  - (iv) Indicators of housing demand (see below).
2. There is a particular need for further work in developing demand indicators. Such work should give explicit consideration to the operating needs of planning authorities and could usefully be divided into two parts:
  - (i) Distributional indicators. The objective here would be to construct indicators which could readily be integrated with a "demographic" forecast of housing requirements, enabling the provision in a county or travel-to-work area to be distributed between constituent areas.

- (ii) Techniques for forecasting building rates. The objective here would be to improve upon the residual method of calculating "land supply requirements" in land availability studies, and ultimately to develop an alternative method for determining plan housing provision. Techniques may include simple approaches, in which quantification is based on educated judgment, as well as more sophisticated approaches involving econometric analysis.

3. There is a need for research into aspects of Structure Plan policy formulation throughout Great Britain. The experience of this study would suggest that this research should proceed as follows:

- (i) Confirmation that a broadly demographic approach was pursued, involving the use of Department of Environment headship rates.
- (ii) An assessment of the principles governing the determination of plan migration assumptions.
- (iii) An assessment of the degree of consistency between the population projections of neighbouring plan areas. This would involve expressing the net migration assumptions of each plan as an average net migrants per annum figure.
- (iv) An assessment of approaches to forecasting requirements for "replacement dwellings". This would include a consideration of assumptions made regarding the qualitative aspects of housing, including tenure.
- (v) An assessment of the principles governing the distribution of housing provision.

There is also a need to consider:

- (vi) The frequency with which reviews of Structure Plans are to be conducted.
- (vii) The relationship between the representations of interested parties, the recommendations of the Panel sitting at Examination in Public, and modifications proposed by the Secretary of State.
- (viii) The evolution of regional planning guidance in the East Midlands and elsewhere, and its incorporation in Structure Plans.

4. There is a need to consider particular aspects of Local Plan policy formulation and the implementation of policy, including:
  - (i) The influence of builders and other parties upon site allocations and development control decisions.
  - (ii) Consistency in the determination of planning appeals by Department of Environment Inspectors, and the extent of "feedback" influences upon development control decisions taken by district councils. (A programme of research in this area has been initiated at Nottingham Polytechnic).

### Notes to Chapter Seven

1. See Chapter Six, note 11
2. Interview with G. Gardner, Senior Planner, Nottinghamshire County Council, 16/10/89
3. Author's interpretation
4. Planning in Northamptonshire and the Peak District National Park not studied
5. Coopers and Lybrand Associates, Land Use Planning and Indicators of Housing Demand (London : Coopers and Lybrand Associates, 1987), para 3.16
6. Interview with K. Spilling, Chief Assistant (Research and Information), Leicestershire County Council, 2/3/90

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"Submission by the House-Builders' Federation on Cheshire 2001 County Structure Plan Review (1986-2001)" (HBF North Western Office, 1990).

"Representations on the Draft Replacement Structure Plan for West Sussex" (HBF Southern Office, not dated).

"Response to Oxfordshire 2001 : Draft Proposed Alterations to the Structure Plan for Oxfordshire" (HBF Southern Office, not dated).

Information supplied by key informants makes a direct contribution to this thesis and has been essential in developing a broad appreciation of practice and contemporary issues. Research of this kind depends on the willingness of informants to give up their time and energy in participating in interviews and supplying additional material. It is important to recognise that research is an ongoing activity, and that the researcher has an obligation to respect the wishes of interviewees and to emphasise that errors of fact and interpretation are his responsibility. The views of individual planning officers do not necessarily represent the official position of the authority in which they are employed. Planning for housing development is a sensitive subject, and the names of informants who specifically requested anonymity have been omitted from this appendix.

Key Informants in Nottinghamshire

Graham Gardner, Senior Planner (Planning Policy Group), Nottinghamshire County Council, supplied information throughout the course of the research. Interviews with officers in district planning authorities were conducted in two phases. The first phase, conducted in late 1988, was principally concerned with the implementation of the 1980 Structure Plan; the second phase, conducted in late 1989 and early 1990 was principally concerned with the proposals of the Structure Plan Review.

Ashfield : P Simmons  
Bassetlaw : B Barnett, Anonymous  
Broxtowe : C Gilbert, Ms J Murray  
Gedling : Ms K Hughes, S Lewis-Roberts, D Owen, B Wilson  
Mansfield : A Whitelaw  
Newark and Sherwood : D Blandamer  
Nottingham : R Ranson  
Rushcliffe : R Cooper, P Mason

### Key Informants in Derbyshire, Leicestershire and Lincolnshire County Councils

Interviews conducted early 1990.

Derbyshire	:	Ms B Ackryll, Monitoring and Information Unit M Brown, Principal Planning Officer (Structure Plans) Additional assistance - J Whittaker
Leicestershire	:	K Spilling, Chief Assistant (Research and Information) Additional Assistance - D George
Lincolnshire	:	N Antalopoulos P Raspin, Structure Plan Officer

### Key Informants in Other County Councils

Interviews conducted early 1990, following a pilot programme conducted late 1989.

Contact was made with officers in all English county planning authorities, these being grouped into standard regions for the purpose of organising the research. The broad aims were to identify authorities which had undertaken formal studies of indicators of housing demand and to gain additional insights into practice. Given prior awareness of planning issues in the South-East, county councils in this region were approached first. Interviews took place with officers in all counties except Bedfordshire, Cleveland and Hampshire. Material subsequently supplied by Hampshire County Council (and other authorities) makes a direct contribution to the thesis.

Avon	:	Anonymous
Berkshire	:	J Thorpe
Buckinghamshire	:	G Liddiard, Monitoring Team Leader
Cambridgeshire	:	M Vigor, Structure Plan Officer
Cheshire	:	Ms B Lloyd
Cornwall	:	M Brown, Research and Information Team
Cumbria	:	S Hurr, Principal Planning Officer
Devon	:	Anonymous
Dorset	:	Mr Gobbett, Group Leader (Policy and Economic Development)
Durham	:	Ms J Portrey, Senior Planning Assistant (Structure Plan Team)
East Sussex	:	P Treadgold, Principal Planner (Demography and Housing)
Essex	:	Anonymous
Gloucestershire	:	G Foster, Planning Assistant (Structure Plans)
Hereford and Worcester	:	C Lloyd, Group Planner (Research)
Hertfordshire	:	P Jackson, Head of Forward Planning
Humberside	:	Ms B Henderson, Principal Planning Officer

Isle of Wight	: P Randall, Principal Planning Officer
Kent	: P Martin, Principal Planning Officer
Lancashire	: J Whittaker, Principal Planning Officer
Norfolk	: R Thresh, Strategic Planning Section
North Yorkshire	: M Spittal, Senior Officer (Policy Section)
Northamptonshire	: R Bolton, Monitoring and Information Officer
Northumberland	: J Bell, Senior Planner (Development Plans)
Oxfordshire	: I Walker, Principal Planning Officer
Shropshire	: D Jones, Planning Officer (Policy)
Somerset	: R Packham, Principal Planning Officer (Information)
Staffordshire	: Ms A Wells, Principal Planning Officer (Research)
Suffolk	: G Hudson, Assistant Planning Officer (Research and Information)
Surrey	: T Gould, Principal Planning Officer (Strategic Planning)
Warwickshire	: G Ball, Principal Planner (Information Management and Research)
West Sussex	: G Abraham, Senior Planning Officer
Wiltshire	: R Hillman, Senior Planning Officer (Structure Plans)

#### Additional Sources of Information

The research drew on much additional information, including that supplied in correspondence from various sections of the Department of Environment, and the Regional Land and Planning Officers of the House-Builders' Federation. Interviews were conducted with Ian Corner and Dr Shekhar Nandy (DoE, Household Projection Service) and Ed Chmara (DoE, East Midlands Regional Office). Valuable advice was offered by:

Bill Blincoe (former National Land and Planning Officer, HBF);  
 Jeremy Brown (Coopers and Lybrand Associates);  
 Joe Doak (South Bank Polytechnic);  
 Dave King (Chelmer/Anglia Institute of Higher Education);  
 Fergus MacLeod (SERPLAN Secretariat);  
 Moira Munro (Glasgow University).

Various conferences and seminars were attended during the course of the research. These included:

Department of Town and Country Planning, University of Manchester :  
 "Housing Market Demand and Planning Policy - Local Impacts and Issues", Manchester, 5th May 1988;

Housing Centre Trust : "Housebuilding - Issues of Land Availability and Good Design", London, 24th October 1988;

PTRC : "Supplying Land for Housing Needs", London, 9th November 1988;

PTRC : "Forecasting Housing Demand and Supply", London, 13th March 1990.