THE SPATIAL DISTRIBUTION OF GENERAL MEDICAL PRACTITIONERS

CONTENTS

ABSTRACT

Most governments regard the spatial distribution of physicians as sub-optimal, whatever methods of remuneration or health care delivery are used. Explanations of the spatial patterning of medical manpower have invoked economic, sociological and epidemiological concepts, although no satisfactorily unifying theories have been found in the literature. Attempts by governments to influence the distribution of physicians have varied in content; many policies have embodied some form of control or incentive, but others have sought to enhance the natural factors that are believed to attract physicians to undermanned localities.

Post-war policies in the National Health Service for the spatial distribution of general medical practitioners have emphasised the elements of financial incentive and negative control, yet the trends in distribution since 1948 have been fluctuating rather than linearly progressive. The perceived inequity of existing distributional patterns remains a matter of contemporary concern, and the geographical mobility of general practitioners (to the extent that this is known from routinely available statistics) appears to be dysfunctional to a desirable distribution. Analysis of the objectives and contents of the policies reveals a number of conceptual problems and administrative inadequacies.

The most important conceptual problems concern the equity objectives of existing distributional policies, the choice of territorial units in the assessment and control of locational choices, the adequacy of the

statistical measures that are traditionally employed as indicators of maldistribution, and the potential ambiguities arising from a failure to distinguish between the adequacy of the aggregate supply of manpower and its distribution. The administrative inadequacies include a disincentive effect inherent in the regulations governing the payment of financial incentives and the inability of routine data sources to permit an on-going surveillance of relevant trends.

PREFACE

This thesis is based upon work completed by the author whilst working as a Research Fellow in the Health Services Research Unit at the University of Kent between 1969 and 1976. The empirical investigations reported in the thesis were funded by the Department of Health and Social Security, initially under a project grant and later as a part of the Department's broader contractual commitment to the Unit. Much of the substance of the thesis has already been published, and a full list of publications emanating from the study is set out in Appendix C.

Many people have contributed to the study in various ways, and the regulations of the University of Kent require the extent of collaboration to be clearly indicated in the thesis. Appendix A comprises a statement, endorsed by my collaborators, of the relative contribution of each collaborator to the study.

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John Butler,

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INTRODUCTION

This thesis is about the spatial distribution of primary medical manpower. It is concerned with concepts of maldistribution and equity in the distribution of manpower, with the extent and causes of geographical imbalances in the location of primary care physicians, and with the effectiveness of distributional policies. The research on which the thesis is based is applied research in the sense that it is pragmatically oriented and is structured as a means of understanding a contemporary problem of health service policy and of providing a knowledge-base for the further development of policy (Williams and Wysong, 1975). The entire project has been characterised by a bilateral relationship between research and policy, each contributing to and drawing from the development of the other. The object of this introduction is thus to locate the thesis in its historical context and to outline the nature and the content of the research concerns. The introduction sets out the chronological development of the project between 1969 and 1976; it describes the policy and academic issues with which the thesis is concerned; and it concludes with a summary of the structure of the thesis.

The project began in 1969 with the receipt of a grant from the Department of Health and Social Security (DHSS) to study the effect of financial incentives on the location of general medical practitioners (GPs) in England. Since the introduction of the National Health Service (NHS) in 1948, a continuing objective of manpower policy has been equality in the geographical distribution of practitioners in relation to total population, equality being judged in the context of a set of area units defined for this unique purpose. An array of controls and incentives has sought to ensure the success of the policy. The most recent incentive, heralded by the seventh report of the Review Body on Doctors' and Dentists' Remuneration in May 1966 (Review Body, 1966), took the

form of an addition to the basic practice allowance for GPs practising in areas designated by the Medical Practices Committee (MPC) with low relative ratios of doctors to population for at least three years. This addition, known as the designated areas allowance, was priced at £400 in 1969, and it was one object of the study begun in that year to assess the effect of financial incentives on the movement and location of practitioners. Other principal objects of the study were the identification of patterns of geographical mobility among family doctors, the exploration of constraints in doctors' decisions about their practice locations, and the description of variations, real and perceived, between practitioners and practices in areas with differing doctor-population ratios.

The study, as it proceeded, was set against a changing medico-political background. As chapter 2 notes, the designated areas allowance was the subject of recurrent critism from its inception, and many proposals were made by the profession for amendments to the regulations governing its payment. In 1970, at the mid-point of the study, an agreement was reached between the profession's representatives and the Health Departments to change the flat-rate allowance into a two-tier payment, the higher level to be paid to practitioners in areas with very large mean list sizes. The agreement was priced initially by the Review Body in its twelfth report in June 1970 (Review Body, 1970), but the failure of the government to accept the report in its entirety prompted the members of the Review Body to resign en bloc. A new Review Body was constituted in July 1971 under the chairmanship of Lord Halsbury, and in its first report in December of that year it restored many of the elements of the previous report which the government had been unable to accept (Review Body, 1971). However, no changes were made to the value or the administration of the designated areas allowance because of the expressed wish of the Review Body to

undertake a more comprehensive assessment of the nature of the problem and the range of possible solutions.

One month prior to the appearance of the first Halsbury report, the report of the research study was completed and copies submitted to the DHSS, the British Medical Association (BMA) and the Medical Practices Committee. A meeting also took place to discuss the report with the Office of Manpower Economics, which acted at that time as the Secretariat to the Review Body. The first public acknowledgement of the impact of the research on the development of the designated areas policy appeared in the second report of the new Review Body in June 1972 (Review Body, 1972). Recommendations were made to increase the amount of every fee and allowance in the matrix of GP remuneration with the single exception of the designated areas allowance. The report commented: 'A recent (and as yet unpublished) study from the University of Kent has revealed grounds for doubt as to whether the (designated areas) payments in their present form are making an effective contribution towards solving the problem of under-doctored areas, and the matter is to be discussed between the Health Departments and the profession in the near future. In these circumstances we do not recommend any change in the amount of these payments at present.'

The discussions referred to by the Review Body were initiated in November 1972 with the establishment of a Joint Working Party between the General Medical Services Committee (GMSC) and the Health Departments, with representation from the Medical Practices Committee, to review the designated areas and initial practices allowances. Abbreviated versions of the research report were prepared for use by the Working Party, and discussions took place in 1973 with representatives of the BMA and the DHSS to clarify certain of the implications and conclusions of the research. However, no direct contact was made with the Working Party,

and the Department declared itself unable to comment on the deliberations whilst they were still in progress. The inability of the researcher to establish direct communication resulted in a failure to follow the Working Party's progress. Reports from BMA leaders in June 1973 implied that little progress had been made, but one month later the Department reported only one remaining meeting for the Working Party. In December 1973 it was acknowledged by the Department that the Working Party had still not completed its task, and in its report in the following year the Review Body made no reference to the structure of fees and allowances pertaining to the distribution of manpower (Review Body, 1974). Two developments occurred in the subsequent twelve months that may reflect some of the conclusions reached by the Working Party. In March 1975 a Circular from the DHSS instituted a transfer from the Department to the Family Practitioner Committees (FPCs) of responsibility for authorising payment of the designated areas allowances (DHSS, 1975a), and in the following month the Review Body recommended an increase in the allowances of 53 per cent over the levels previously fixed in 1970 (Review Body, 1975). Notwithstanding the Review Body's earlier (1971) expressed intent to delay the recommendation of increased payments until a more comprehensive assessment had been made, and in spite of the generally critical conclusions of the research towards such an increase, no attempt was made by the Review Body to justify the recommendation. The designated areas and other inducement allowances were discussed only in the context of their effect upon the excess of actual net remuneration in any one year over the target remuneration set by the Review Body in the preceding year.

Meanwhile, a second study within the project had begun. As the thesis shows, the initial study completed in 1971 had questioned the validity of certain assumptions used by the DHSS and the Review Body in articulating the concept of maldistribution. Two particular assumptions

were examined: that the ratio of doctors to total population is an adequate index of the equity of distribution, and that the medical practice areas are appropriate geographical units for assessing and controlling the mobility and location of general practitioners. A further grant was received from the Department of Health and Social Security in 1972 to investigate the latter of these assumptions. The criteria for assessing the adequacy of the distribution of a service must take account of the boundaries within which the service operates (Dickinson, 1954; Shannon et al, 1969). In the case of economic transactions, the area is loosely defined by the travel costs which consumers are prepared to bear in order to purchase goods: different categories of goods possess a different retail gravitation force and thus create accessible trading areas of variable size. The trading area for essential foodstuffs, for example, is usually much more restricted than that for yachts and fur coats. In the case of a National Health Service, where monopolistic services are supplied at zero or nominal user price, the delineation of areas is more explicit and is more open to professional and bureaucratic than to market influences; and, where the definition of area units regulates the accessibility of a service, the result may be less sensitive to the demands of the consumer. In the post-1974 health service, for example, the operational unit (the health district) is defined predominantly from the supplier's perspective as being 'the smallest population for which comprehensive health care can be planned, organised and provided' (DHSS, 1973). No reference is made even to the non-monetary costs incurred by consumers in gaining access to services organised according to such principles.

The target ratios of doctors to population in the general medical services are applied within geographical units (medical practice areas) that are defined for this unique purpose. A major objective of this second study was thus to identify criteria (particularly criteria of

size and accessibility) for judging the function of the practice areas in regulating manpower distribution, and to apply the criteria to the existing areas. Other principle objectives were to document the origins of the medical practice areas and the mechanisms by which their boundaries are reviewed and amended; to analyse the operation of the designated area policies from the local perspective (the executive council (EC) and the local medical committee (LMC)); to assemble, analyse and evaluate data on the size structure and location of practice areas; and to relate the conclusions from the study to the (then) impending reorganisation of the National Health Service.

The study began against a background, described above, of dialogue between the researcher and the DHSS, the BMA and the Medical Practices Committee about the implications of the first study, and a background also of impending change in the administrative structure of the NHS. Joint Liaison Committees had been established in June 1972 to co-ordinate the preparatory work of reorganisation (DHSS, 1972a), and later in the year the White Paper and the Management Arrangements were published (DHSS, 1972b, 1972c). The emerging themes of reorganisation impinged upon the concerns of the project in various ways. Central to the reorganisation was the creation of wholly new territorial units, particularly at the operational (district) level, which raised sharp questions about the need for contiguity between the boundaries of the new health districts and the existing medical practice areas. A second theme concerned the possible impact of reorganisation upon the mechanisms for the day-to-day control of the designated area policy. Issues were raised, for example, about the possible effect which the insertion of an area tier might have upon the traditional relationships between the Medical Practices Committee, the local medical committees and the family practitioner committees. A third theme of reorganisation, the creation of an integrated administrative structure to facilitate a comprehensive

planning cycle, raised questions about the continuing role of an independent system for planning and managing the distribution of an essential resource (the family doctor) in the integrated service.

It was an important part of this second study to relate the objectives of the study to the developing proposals for reorganisation, and an interim report (made available to the Department in November 1973) contained the substantive results of a survey of executive council clerks, including their hopes and aspirations about the impending changes. The final report, in June 1974, explicitly attempted to relate the results of the study to the reorganised administrative structure of the service. Already, however, an initiative had been made to rationalise the boundaries of the practice areas in ways consistent with the broad conclusions of the study. In October 1973, the Medical Practices Committee issued a circular to EC clerks and secretaries of joint liaison committees requesting their co-operation in 'setting up a working party to consider and recommend the delineation of practice areas in the new Health Authority area to be constituted on 1st April' (Medical Practices Committee, 1973). The circular pointed out that the proposal, which emanated from the Management Committee of the Society of Clerks of Executive Councils, was 'designed to seize the excellent opportunity of rationalising in some instances the delineation of practice areas and so enable the Committee (and the new health authorities) to readily identify the local needs .... for additional practitioners.'

In June 1975, as noted above, the Review Body recommended increases in the levels of the designated area allowances, and these were accepted by the government and backdated to 1st April. In December of that year the Medical Practices Committee informed the profession of its intention to increase the number of practice areas over which it had some power of negative control by extending the upper limit in the defining list size

of intermediate areas from 2,000 to 2,200, thereby increasing (by about one thousand) the number of practitioners needing to obtain special consent from the MPC before recruiting partners. The Chairman of the Committee was reported to have said of the change: 'Doctors are failing to go into the very chronically designated areas. We felt that we were not exercising our powers of negative direction sufficiently' (Medical News, 1976). The continuing concern in 1976 about the maldistribution of primary medical (and dental) manpower was further reflected in the Consultative Document, issued by the Department of Health in March of that year, on priorities in health and personal social services expenditure (DHSS, 1976). Section III of the Document, on the primary care services, specified as one of four principal objectives that of 'remedying persistent shortages of personnel in localities where they occur, by encouraging a better distribution of manpower', and the Document announced the initiation of discussions with representatives of the general practitioners about, inter alia, 'the recruitment and distribution of family doctors'.

The second of the two assumptions underlying the Department's concept of maldistribution which the original study gave grounds for questioning is that of the adequacy of mean list sizes within practice areas as an index of equity in manpower distribution. As the thesis shows, substantial grounds exist for challenging the adequacy of both the doctor and the population components of the index, but these were merely noted and not elaborated in the report of that first study. In the time since the completion of the report, however, the theoretical and policy issues involved in the challenge have sharpened with the growing concern over geographical inequalities in the allocation of health service resources. An early discussion of inter-regional variations in hospital activity rates (Logan, 1964) drew attention to the combination of the 1948 legacy, the lack of major capital development

in the following decade, and the existing procedures for allocating revenue on the basis of the distribution of capital resources as contributory factors in the unequal patterns of current expenditure; and it was one intention of the 1962 Hospital Plan to overcome the regional disparities in capital inheritance by moving towards an equalisation of bed-stock per capita by 1975 (Ministry of Health, 1962). By 1966, however, the building programme had fallen substantially behind the planned development (Ministry of Health, 1966), and it was clear by the end of the decade that the relative positions of the regions were little changed (Griffiths, 1971).

In 1970 a new formula was introduced by the DHSS for allocating revenue to the regional hospital boards, designed to accelerate the reduction in inter-regional inequalities by mixing the elements of population (weighted for age and sex variations in specialty usage) bed-stock and case-flows in the proportions of 2:1:1 (Cooper, 1975). Though an improvement on the previous method of allocating resources, the new formula failed to establish a satisfactory trade-off between equity and efficiency (West, 1973), and by applying the formula only to the additional resources available each year, it also failed in large measure to meet its internal objectives at a time of very modest economic growth. Evidence accumulated of continuing inequalities in per capita expenditure in the reorganised NHS, not only between regions but also between areas within regions (Buxton and Klein, 1975; Rickard, 1976). A special Working Party, established by the DHSS in 1975 to review the basis for the allocation of revenue to the regional health authorities (RHAs), recommended in an interim report in October 1975 the abolition of the bed-stock element of the existing formula, a reduction in the weighting of the case-load element, and an improvement in the precision of the population adjustment (DHSS, 1975b). The application of the revised formula to the 1976/7 regional allocations would have resulted

in increased allocations of up to 6.83 per cent in nine of the fourteen English regions and reductions of up to 1.55 per cent in the remaining five regions; but in fact the allocations for that year were adjusted to ensure that each region gained some additional revenue, albeit with some regions gaining relatively more than others (Lancet, 1976). At the time of writing, reports have appeared of the imminent publication of the final report of the Resource Allocation Working Party, which is expected to recommend the incorporation of morbidity and mortality data in weighting the population element of the formula, thereby relating resource distribution more closely to inter-regional variations in 'need' (Times, 1976). It has also been reported that regional health authorities are considering the use of a similar formula in allocating resources intra-regionally. The continuing concern of the Secretary of State to ensure a redistribution of resources in favour of relatively deprived areas is stressed in the 1976 Consultative Document (DHSS, 1976).

Although the research reported in this thesis is concerned with the geographical distribution of manpower, not of money, the problems of articulating the concept of an equitable distribution are comparable. First, there is the problem of disaggregating the total population to make an appropriate allowance for variations in 'need for care' (however that may be defined) between sub-groups of the population. The formulae used by the DHSS since 1970 for allocating revenue to the regions have sought to do this initially by taking age and sex variations in the use of hospital facilities as proxy indicators of need (as in the 1970 formula), and later by using data on mortality and morbidity rates to adjust the population structure (as in the 1976/7 formulae). So far, however, the Medical Practices Committee has shown no public sign of interest in attempting to make similar adjustments in calculating mean list sizes in the medical practice areas, although it must be recognised that relevant data are much more accessible at RHA and AHA levels than

at the level of practice areas. Second, there is the problem of standardising the value of the resource units. The current index of equity in GP distribution assigns an equal weight to all unrestricted principals with list sizes in excess of one thousand; but it is evident that the potential output is far from equal between doctors. Not only do marked variations exist in the extent of GPs' outside appointments, and hence in their availability to their practices (Irvine and Jefferys, 1971); they are also likely to vary in the quality of their work. Thus a numerical equality of family doctors to population (even with an acceptable adjustment for 'need') in each practice area may still fall short of an acceptable definition of an equitable distribution. The value of the resource units may in principle be standardised to achieve an equality of man-hours of care, of services given to patients, of the quality of care delivered, or of the effect or outcome of care. The third problem, therefore, that is common both to the allocation of revenue resources and to the objectives of manpower policies, is that of selecting a measure of standardisation that will achieve an acceptable balance between the demands of equity and the existing limits of feasibility. Equality in the distribution of resources, where each unit of resource is given an equal weight, is a simple and highly feasible standard of equity because the degree of its attainment can be readily measured and monitored, and further reductions in the extent of such inequality can probably be achieved. It may, however, be regarded as a weak standard because of factors of the kind described above that mediate between a given level and mix of resources and the service output generated by them. A stronger standard of equity may be considered to be equality of service delivery to patients, or even of service outcome in terms of changes in the health status of patients; but our current understanding of the production functions of general practice is insufficiently precise to make such standards a feasible basis of policy. A fourth problem, therefore, that is involved in articulating the concept of both an

equitable distribution of primary physician manpower and an equitable allocation of revenue resources is that of understanding the relationships between different combinations of resource inputs into health care (of which the doctor is one of several categories of resources), the pattern of service outputs generated by those resource mixes, and the outcome of the service in terms that relate to the health, welfare and functional ability of patients. Until these relationships are better understood, a simple equalisation of resources, in which each unit of resource is taken as of equal value, may be the only feasible basis for the development of policies concerned with the spatial distribution of resources.

These problems have not yet been the subject of empirical investigation, and they are discussed in chapter 15 in theoretical terms only. However, the challenge of refining both the population and the doctor elements of the index of mean list size for the purpose of classifying the medical practice area is an obvious starting-point for the future development of the project, and some of the initial ideas have already been shared nationally and locally (Butler, 1976a; 1976b). The encouraging response indicates that this may represent a fruitful research contribution to the continuing quest for improvements in the deployment of limited resources.

The major themes of the study have been described in outline above. They are: the geographical movement and location of a professional group engaged as independent contractors to a public service; the structure and application of policies designed to influence and control the mobility of members of the group; the nature and adequacy of the concepts of equity and maldistribution that are either explicitly defined in statements about the policies or implicitly embodied in the policies themselves; and the delineation of territorial units to be used in defining the extent of

maldistribution and in administering corrective policies. The minor themes of the study are: the utilisation of the products of applied research in the development and modification of policy; the utility of official sources of data in monitoring the movement of medical manpower and in assessing the effect of measures designed to influence the movement; and the impact of the National Health Service (Reorganisation) Act, 1973 upon the problem. The unifying theme of the research is that of spatial inequalities in the access to resources, for inequalities in the access to one particular resource (in this case, family doctors) are structurally related to a much broader conceptualisation of inequality. As Rushing (1975) comments: 'Community differences in physician manpower must be viewed from the perspective of the community contexts in which those differences exist ... The maldistribution of physicians is only one part of a broader macrosocioeconomic pattern that has a predictable and discernible system character to it.' The need, both conceptually and empirically, to disaggregate a large complex of inter-related problems for the purpose of understanding one particular segment cannot over-ride the greater need to understand the relationships of the segments to the whole. Inevitably, this thesis is concerned for the most part with a segment, but an attempt is made throughout the work to treat it in its broader context.

The structure of the thesis is tripartite. The first section provides a summary of the nature of the problem of maldistribution of medical manpower, the extent of spatial imbalances in distribution, the explanations that have been used to account for the phenomenon, and the nature and outcome of interventionist policies. Chapter 1 attempts to give an overview at the cross-national level. It begins with a consideration of the concept of maldistribution, and continues with a review of the literature on the evidence, causes and remedies of spatial maldistribution. The remaining four chapters in this section

deal in detail with the British experience. Chapter 2 traces the post-war history of the policies designed to influence the location of general practitioners; chapter 3 describes the detailed structure of these policies as they currently operate; chapter 4 presents some original data on the size and structure of the medical practice areas, and discusses some problems in their use as the territorial units in assessing and controlling the location of GPs; chapter 5 sets out the available statistical data on trends in the distribution of family doctors between practice areas and between standard regions and the former executive councils.

The second section of the thesis presents the results of an empirical study of general practitioners in England. The study, consisting of a social survey among a sample of approximately one in ten of all English principals, embodied three main objectives: to describe the geographical mobility patterns of general practitioners; to elicit the self-reported reasons for the choice of practice location; and to gather perceptual information about the social and professional variations between practice areas. Chapter 6 describes the detailed objectives and methods of the survey, and the remaining eight chapters present and discuss its results. Chapters 7 and 8 deal with the extent and nature of the geographical movement of doctors from one part of the country to another. Chapter 9 unravels the relationships between the practice locations of the survey respondents at the time of the survey and the areas where they were born, brought up and educated; and the areas from which their spouses originated. Chapters 10 and 11 describe the personal and professional characteristics of the doctors in the survey, paying particular attention to the variations in these characteristics between doctors in different types of practice areas. Chapters 12 and 13 focus on the practices and the areas of the survey respondents, emphasing again the variations existing between respondents in each class of area. Chapter 14 presents the

information culled from the survey about the self-reported reasons given by the doctors for their choice of a practice location. The material in this chapter is drawn partly from the replies of the respondents to a series of open-ended questions in the survey questionnaire and partly from in-depth tape-recorded interviews with a sub-sample of doctors following the main survey.

The third section of the thesis attempts to draw together many of the themes and ideas of the preceding sections in a discussion of some conceptual and policy issues surrounding the 'maldistribution' of primary-care physicians. Chapter 15, taking the value of equity as a principal motivation in the development of distributional policies, seeks to describe the possible meanings of equity that have been, or could be, embodied in the substance of policies relating to manpower distribution. Four standards of equity are described: equity as an equal distribution of resources between all competing units; equity as an equal distribution of resources in relation to total population size; equity as that distribution of resources which produces an equality of service output; and equity as a resource-distribution tending towards an equality of outcome for the recipients of services. The possible factors affecting the relationships between these standards of equity are discussed, and the feasibility of each level as a policy objective is outlined. In practice, judgements have to be made about an acceptable trade-off between the sophistication and the feasibility of each standard: existing standards are feasible, but widely regarded as crude; the more acceptable standards, by contrast, require a body of knowledge and a methodology that are at present very limited.

The concluding chapter returns to the designated areas policy and uses the material developed in the first two sections of the thesis to outline the major problems and ambiguities of the policy, and to discuss

the range of choices available to overcome them. The most important ambiguities centre upon the failure to distinguish between the supply and the distribution of manpower, and the failure to explicate the equity objectives of the policy. Although a strong rational case can be made for dismantling the structure of existing distributional policies and starting again, it is recognised that the political environment in which policies mature is rarely responsive to arguments of comprehensive rationality. Indeed, the chapter notes the unwillingness at any level of authority to contemplate the concepts and objectives of existing policies, notwithstanding the encouragement to do so and the guidelines offered by the research reported in this thesis. Accepting the improbability of a fundamental revision of the designated areas policy, the chapter reviews a number of possible modifications that could be made within the basic structure of the existing policy, and describes what is known of the extent to which they have been, or are likely to be, implemented.

SECTION ONE

THE SPATIAL LOCATION OF MEDICAL MANPOWER

CHAPTER ONE

THE MALDISTRIBUTION OF MEDICAL MANPOWER: AN OVERVIEW OF THE EVIDENCE, CAUSES AND REMEDIES

The concept of maldistribution

The concept of the maldistribution of medical manpower embodies two distinct components: the observation of a distribution of manpower in relation to specified criteria, and the judgement that the observed distribution fails to meet an acceptable standard. The criteria by which the distribution is defined are most commonly those of specialty, client group or geographical area, and although this thesis is concerned principally with distribution in a spatial (or geographical) context, it may be observed that the three contexts are to some extent inter-related. For example, as the research reported later in this chapter will reveal, the continuing concern in the United States over the spatial location of physicians is partly a function of the distribution between general and specialist practice, for unlike general practice, many specialties require a catchment population and a network of facilities sufficiently large to preclude the location of those specialists in sparsely populated areas (Fein, 1972).

The notion of spatial distribution implies the existence of criteria for sub-dividing the territory within which the distribution is observed. When the concern is with the distribution rather than the total supply of medical manpower, the territorial interest shifts from the whole unit (usually the country) to identifiable sub-units of it. In most countries, various ways exist of making this division. Official statistics of manpower distribution frequently group the data on the location of doctors according to central or local government units; in other cases *ad hoc* geographical units may be created (as in England); in yet other cases the units may be groupings of non-contiguous areas with common

characteristics, such as the Standard Metropolitan Statistical Areas (SMSAs) used in many American studies. However it may be done, the whole unit must in some way be divided if the concept of spatial distribution is to have meaning, but the specific method of division is always likely to affect the magnitude of the variations observed between the sub-units. The apparent imbalance in the distribution of manpower within a country can be maximised or minimised according to the delineation of sub-unit boundaries, and larger units are always likely to show less variability in doctor-patient ratios than smaller units. This problem is particularly evident in ecological-type analyses (see page 32) which deal with sums and means of variables on an area basis, and which seek to relate the variables to some measure of manpower supply. As Shannon et al (1969) point out, the use of correlations between variables arranged in this way is a weak indicator of the real nature of the problem, for the larger the areas of comparison, the more likely it is that most of the variance will occur within the areas, not among them. There may also be a difficulty in using administrative or governmental units for the purpose of describing and explaining the spatial location of medical manpower if those units fail to reflect the real ways in which suppliers and consumers of services are related. People frequently look beyond their immediate local administrative units for their health care, and the task of reconciling the visible boundaries of, say, local government areas with the invisible boundaries of the medical catchment area may involve complex statistical manipulations (Rickard, 1976). It is thus an integral part of the process of judging the extent of maldistribution that the geographical units are clearly described and justified. This problem is discussed in relation to the distribution of general practitioners in England in chapter 4.

The selection of an appropriate measure of manpower dispersion between the chosen geographical areas also presents a number of choices. The simplest measure of dispersion is the total number of medical graduates

within each area expressed as a rate per unit of total population. In countries where the means of collecting more elaborate data are lacking, this simple doctor-patient ratio (DPR) is the best that can be done, and it is used by, for example, the World Health Organisation in its annual statistical reviews for describing the distribution of doctors between urban and rural areas in member countries (WHO, 1976). However, the inclusion of all medical graduates, whether engaged in active patient care or not, fails to reflect the basic concern with the distribution of medical care services, and a more sophisticated DPR would thus be one in which the doctor component of the ratio is limited to those engaged in active clinical practice. Further adjustments may be made to distinguish between individual practitioners and whole-time equivalents, between doctors in general practice and in each of the major specialties, and between those in training and those in career grades. Empirical studies have rarely adjusted the DPR more finely than this, although the implicit interest in manpower not as an end in itself but as a means for the delivery of care to patients, opens the theoretical possibility of adjusting the doctor component still further to allow for variations between practitioners in the quantity and quality of care they give to their patients.

Having selected a measure of manpower dispersion and applied it to the chosen area units, the concept of maldistribution requires a judgment about the acceptability of the observed distribution. Are the variations in the DPR between the area units sufficiently large to be considered a social problem and to justify corrective policies? It is not self-evident that even quite large variations necessarily constitute a maldistributive problem. Areas with relatively favourable DPRs may also be those with relatively high levels of morbidity, making a statistical imbalance between doctors and population in different parts of the country a functional and desirable pattern. Even if the most favourable DPRs are found to occur in areas with the highest levels of per capita income rather than of morbidity,

the distribution may nevertheless be justified on economic grounds if it results in the best care going to the most highly productive workers (Rimlinger and Steele, 1963). Notwithstanding the variety of perspectives through which statistical data on the dispersion of doctors may be evaluated, governments appear readily to accept data on any inter-area variation in DPRs as evidence of an undesirable distribution of manpower (Rushing, 1975); and although a certain degree of variation is inevitable in any country, whatever its method of remunerating physicians, countries with quite small variations may be as ready to perceive a distributional problem as those with gross imbalances. Variations of up to ten-fold are not uncommon between the DPRs of urban and rural areas in many countries (WHO, 1976), yet the difference between the average GP list size of the highest and lowest executive councils in England in 1970, when further financial incentives were introduced to encourage the movement of doctors to under-serviced areas, was only one and a half-fold (DHSS, 1971). The academic literature, too, is almost totally lacking in a critical examination of the rationale for seeking to change distributional patterns or for believing that a numerically equal distribution of doctors in relation to population is the optimal objective. The nearest context in which this type of issue has been discussed in Britain has been that of the allocation of hospital revenue resources (Buxton and Klein, 1975).

Against this background of general comment about the problems of operationalising the concept of the maldistribution of medical manpower, this chapter seeks to summarise what is known about the extent and causes of maldistribution, and to describe corrective policies that have been either implemented or suggested. Although the perspective of the chapter is in principle international, most of the material is drawn from American sources. Apart from the situation in the United Kingdom, which is considered separately in subsequent chapters, almost all of the accessible literature in English is of American origin, and the great majority of

reported studies on the location of doctors have been conducted in the U.S. The loss resulting from the author's inability to cope with languages other than English can only be guessed: some sixty foreign papers are listed in the World Index Medicus for 1960-76 which, from the translation of their titles, may have been relevant to the concerns of this chapter.

The evidence of the spatial distribution of medical manpower within countries

From a world perspective, the two most striking aspects of the intranational distribution of medical manpower are first, that significant imbalances seem to exist in all countries between the spatial dispersion of the population and of doctors, and second, that the dispersion usually results in higher doctor-population ratios in urban than in rural areas. Using all medical graduates and total population as the components of the DPR, the World Health Organisation in 1968 produced inter-regional data for five countries with very differing traditions of political organisation and health care (WHO, 1968). In Austria (1964 data) the population per doctor ranged from 370 in the Viennese region to 1,360 in Burgenland; in Costa Rica (1963 data) the range was from 1,300 in San Jose to 9,530 in Guanacaste; among the malay States (1964 data) the lowest and highest numbers of people per physician were 2,910 in Selangor and 22,000 in Kelantau; in the USA (1964 data) the range was from 550 in the Middle Atlantic Division to 1,080 in the East South Central Division; and in the USSR (1964 data) the ratio ranged from 290 in Georgia to 660 in Tadzhik. In many developing countries in Africa the variations between urban and rural areas are equally large (WHO, 1976). In 1972, Ghana reported 2.7 doctors per 10,000 population in urban areas compared with 0.4 in rural areas; Kenya had respective rates of 6.3 and 0.2; and Zambia reported urban and rural rates of 13.7 and 0.4 physicians per 10,000 population respectively. None of the countries listed in the

WHO Statistical Annual for 1972 experienced more favourable DPRs in rural than in urban areas, and the narrowest reported difference occurred in the United Kingdom, with 14.4 doctors per 10,000 population in urban areas and 11.8 in rural areas.

Data such as these produced by the World Health Organisation can only be regarded as illustrative of broad distributional patterns, not only because of the inclusion of all medical graduates in the ratios and the variable definitions of urban and rural areas from one country to the next, but also because of the minimisation in the apparent distributional bias caused by the selection of large areas for comparative purposes. Using the nine census divisions of the United States, the data reported above indicate only a two-fold variation in the availability of doctors between the best and worst endowed divisions, yet the range in the supply of active non-federal doctors per 100,000 population between the states in 1967 was from 69 in Alaska and Missippi to 318 in the District of Columbia (National Center for Health Statistics, 1968). Below the level of the state, the variations may be even greater. In Los Angeles county the ratio of doctors to population in 1968 was 1:680, but the range between district within the county was from 1:200 in Beverley Hills to 1:2,400 in Watts (Association of American Medical Colleges, 1969). However, the fact that quite large variations in the distribution of doctors appear to exist in all countries, almost whatever area unit of analysis is selected is reasonable evidence of a universal phenomenon. Moreover, the repeated attempts by national and regional governments to influence the patial location of doctors indicate a widespread tendency to regard the data on manpower distribution as evidence of a social problem. Glaser (1970) reports a variety of interventionist strategies that have been implemented in Greece, Germany, France, Sweden, the USSR, Egypt, Turkey, the United States, Israel and the United Kingdom; and a wide-ranging programme of incentives to attract doctors to under-serviced areas has

also been reported from Yugoslavia (Steinman, 1974). The contents of these strategies are reviewed later in the chapter.

With the exception of the United Kingdom, for which the detailed evidence is presented in subsequent chapters, the most complete data discovered on trends in the spatial distribution of medical manpower in an industrial society come from the United States. In each year since 1963 the American Medical Association has extracted and collated data from its Physician Masterfile to document the characteristics of the body of medical manpower in the U.S. The most recent report (Roback, 1974) contains the following ratios of active non-federal doctors per 100,000 population in the nine census divisions in 1973: New England, 202; Middle Atlantic, 201; Pacific, 197; South Atlantic, 153; Mountain, 149; E.N. Central, 136; W.N. Central, 132; W.S. Central, 121; E.S. Central, 109. These ratios, as de Vise (1973) emphasises, clearly illustrate the attractiveness to doctors of the coastal areas of the country, and the pattern is repeated at state level. The states in 1973 containing fewer than 90 active non-federal doctors per 100,000 population were: Alabama (82), Alaska (78), Arkansas (81), Mississippi (77), Ohio (85), Illinois (87) and South Dakota (71); whilst the states with ratios in excess of 150 were: District of Columbia (339), California (168), Connecticutr(169), Maryland (159), Massachusetts (177) and New York (195).

The AMA data also show an increasing trend over the decade of the series towards the concentration of doctors in large metropolitan areas in the United States. Between 1963 and 1973 the proportion of non-federal doctors located in the 300 SMSAs rose from 83.7 per cent to 86.4 per cent, and at the mid-point of the decade the Association reported almost all of the 2,546 doctors seeking vacancies through its placement service in 1968 wanting a practice in a community of 100-500 thousand population (American Medical Association, 1968). The trend, however, is not new.

Leland noted in 1934 the existence of a correlation between the population density of the states and their doctor-population ratios (Leland, 1934), and Edsall provided data in 1941 showing a marked increase since 1900 in the number of doctors (relative to population) practising in urban centres and a corresponding decline in the number engaged in rural practice (Edsall and Putnam, 1941). However, the most complete data on trends in the location and movement of doctors in America during the first half of the century are contained in the important war-time series of papers from the US Public Health Service (Mountin et al, 1942a, 1942b, 1943, 1945).

Using information on some 227,000 doctors culled from the American Medical Directory, Mountin and his colleagues traced the changes occurring in the composition and distribution of doctors in America between 1923 and 1938. Although the number of doctors per 100,000 population remained static over the period (131 in both 1923 and 1938), significant changes occurred in their locations. The states with the highest proportions of their populations residing in urban areas in 1923 not only experienced the most favourable DPRs in that year, they also improved their ratios over the subsequent 15 years at the expense of less urbanised states. By 1938, states with 70 per cent or more of their populations living in urban areas had relatively twice as many doctors as states with less than 50 per cent urbanised population, resulting in an increasing maldistribution between states over the fifteen-year period. The shift in the distribution of doctors resulted not from the net mobility of established practitioners from rural to urban areas (of which there was very little), but from a combination of the failure to replace rural-based doctors who died and retired, and the preference of newly-qualified practitioners for urban and city practice. The result of this combination of events was seen also in the changing age-structures of the profession in the urban and rural areas. Doctors in rural areas not only had a higher median age

than their urban counterparts at the beginning of the period (1923), but the failure to replace losses through deaths and retirements in the rural places resulted in an even wider disparity in median ages by the end of the period. This in turn has made rural practice less attractive to newly qualifying doctors, and the cycle of rural deprivation continues. Thus, Steele and Rimlinger (1965) in the post-war period found that the two most important factors affecting the change in the location of doctors in the US between 1950 and 1959 were the regional degree of urbanization and the rate of population increase. Isolated rural areas lost 0.7 per cent of their population but 4.4 per cent of their doctors during these nine years; greater metropolitan areas, by contrast, experienced a gain of 18.7 per cent in their stock of manpower. Like Mountin, Steele and Rimlinger emphasise that these changes resulted from entries and exits to the profession rather than the mobility of the doctors.

The problem of the spatial distribution of doctors in America is now seen largely as that of the rural-urban imbalance, and countless papers have appeared in the State medical journals documenting local deficiencies. One study in the eleven counties represented on the Rochester Regional Hospital Council (New York State) reported a loss of 61 per cent between 1905 and 1960 of physicians practising in isolated and semi-rural counties, and the number of towns devoid of physicians rose from 27 to 70 per cent during the period (Parker and Tuxhill, 1967). Another study of some 1,600 towns and cities in Minnesota, Montana and North and South Dakota identified over 1,000 that were entirely without doctors, and a further 200 with only one. Most of these communities were small, economically declining, and located in remote rural areas (Fahs and Peterson, 1968). In the Buffalo-Rochester-Syracuse region of Upstate New York, the rural counties suffered a 23 per cent decrease in the doctor-patient ratios between 1930 and 1950, whilst the ratios in the urban counties increased by 18 per cent, but the authors in this study noted the tendency for

rural areas to retain manpower in periods of economic depression and to lose doctors at times of relative prosperity (Terris and Monk, 1956). Summarising many of these local studies, Cooper et al (1972) used the 1970 definitions of the AMA on 'degree of urbanisation of counties' to illustrate the linear relationship between that variable and the DPR in the United States. The number of doctors per 100,000 population ranged from 195 in the most urban counties to 40 in the most rural counties, with regular gradations through the eight intermediate classifications.

Although the urban-rural imbalance is still seen as the most critical problem of medical manpower distribution in both the United States and Canada (Committee on the Healing Arts, 1970), the deprivation of manpower and other medical services in inner city zones has also been a matter of growing concern in recent years. The data on intra-city variations in the DPR are less profuse than those for larger areas as they depend more upon ad hoc studies and less upon routinely available statistics, but two such studies illustrate the essence of the problem. Cherkasky (1969) described a block of census tracts Southeast Bronx (New York City) in which some 45,000 inhabitants, mainly Negro and Puerto Rican, were sharing the services of only five doctors. In 1938 the block was occupied by 25,000 middle-class white residents, served by 50 doctors. Cherkasky generalises his data about the block as typical of millions to be found in urban areas throughout the United States. Navarro (1971, 1974), tracing the movement of population and doctors within the Baltimore SMSA over the decade 1958-68, found an increasing movement of people from the city centre to the suburbs, with a proportionately larger increase of doctors accumulating in the peripheral areas. Although the DPRs in the inner-city areas remained quite high over the period, this was an artefact of the presence of two large teaching hospitals in the downtown areas. In fact a growing number of large areas in the inner city were totally devoid of primary care, and Navarro predicted a further change in DPRs in favour of the outer suburbs over the next decade.

The theoretical interest of the growth of inner-city deprivations concurrently with a continuing urban-rural imbalance in the spatial distribution of medical manpower lies in the light which these trends might shed upon the causes of manpower location patterns, and it is to this that the chapter now turns.

The causes of location patterns

Four preliminary observations must be made before reviewing the substantive evidence of the reasons why doctors are spatially distributed as they are. First, the available evidence is the fragmentary, largely unco-ordinated work of researchers in several disciplines, including economics, sociology and social medicine. More important than the lack of a reasonably integrated body of research data is the absence of tested theoretical frameworks for organising and interpreting the empirical material. Attempts to explain distributional patterns have been made by sociologists in terms of status-consistencey theory, by economists in terms of income-maximisation behaviour of physicians, and by epidemiologists in terms of a critical relationship between the size of the medical enterprise (including manpower) and the epidemiological characteristics of the population within defined spatial areas. It is evident both from the continuing concern in the literature about organisational frameworks and from the apparent failure at a pragmatic level to induce substantial changes in locational patterns, that any one theory is unlikely to suffice in a general context. For example, it would seem on *a priori* grounds that the status consistency theory (that doctors will tend to locate in communities most closely resembling their own socio-cultural backgrounds) will offer a better explanation of distributional patterns in countries which remunerate doctors on a salaried basis than in those with an unsubsidised fee-for-service system of remuneration. In the latter situation the economic inducements to seek practices in urban areas with a high per-capita income may weaken or even over-ride whatever other

dispositions the doctor might have towards a status-consistent area of practice. (It may also be observed that if, in addition to remunerating doctors on a fee-for-service basis, a marked social bias also operates in the selection of medical students, then the status-consistency and income-maximisation theories would be united in predicting a heavy clustering of manpower in high socio-economic localities.)

Second, as is evident from the comments above, major problems confront any attempts at cross-national generalisations. The methods by which doctors are paid are strongly associated with the resulting distributional patterns; Glaser (1970) concluded from his multi-national case studies of remuneration systems that a fee-for-service system exacerbates the gravitational pull of large metropolitan areas, whereas a salaried service offers the best context in which to pursue relocational policies. There are, however, many other factors in addition to remuneration that confound the application of explanatory approaches from one country to the next. The acceptability to the medical profession of central or local government controls over the location and movement of manpower is a further important consideration. The Soviet Ministry of Health attempts to guarantee a minimum number of doctors in rural posts by compulsory assignments during the years following graduation (Glaser, 1970); in Britain, a negative control only is exercised by the Medical Practices Committee over the location of GPs; in the United States neither positive nor negative direction is exercised by central or local government. These variations alone are likely to produce significant structural differences in the environment within which mobility and settlement occur. Other such factors may include: the methods of supplying and distributing the medical and supporting facilities within which doctors work; the professional relationships which doctors are required or expected to have with other segments of the health care system; the size and physical geography of the country; the communication and transportation networks

that exist; the distributional patterns of wealth, income, political power, commercial and industrial resources; and so on.

Third, for the reasons of resource-limitation which researchers invariably invoke, most explanations have utilised cross-sectional data, although the explanations themselves often involve statements or inferences about secular trends. The distinction is important because cross-sectional data, whilst revealing structural relationships among variables, cannot clarify the manner in which change has occurred. Indeed, it is frequently hazardous on the basis of cross-sectional survey data to draw any conclusions even about the likely direction of a relationship, much less whether it is a causal relationship. For example, Rimlinger and Steele (1963), in the first of their two classic papers on manpower distribution in the US, present data for 1959 showing a positive curvilinear association between the per capita income of county groups and their ratios of doctors to population. The assumption is readily made that the two variables are not only related causally, but that the direction of the relationship moves from per capita income to doctors per population. Such an assumption, if used as the basis for a programme designed to shift the distribution of manpower in favour of low-income areas, might support a recommendation to increase the available per capita income in selected areas. However, in the second of their two papers (Steele and Rimlinger, 1965), the authors plot the changes in the location of doctors over the decade leading up to 1959, relating them to concurrent changes in the degree of urbanisation, the movement of population and the increase in per capita incomes. The results of this analysis showed that an increase in per capita income within counties was indeed associated with a gain in the number of doctors over the decade, but this relationship held good only in the large metropolitan areas. Across the country as a whole, the most important factors affecting the

change in the location of doctors were the regional degree of urbanisation and the rate of population increase. The relative inequality of distribution based on per capita income had actually decreased over the nine years, while the urban-rural inequality had increased. Moreover, not only was income shown to be a less significant factor than the authors had originally suspected, there was also some evidence to suppose that the relationship observed between income levels and the availability of doctors in 1959 was the result of a circular causal link. Doctors, together with other professional and technical workers, tend to follow the movements of the population to high-income areas (through entries to and exits from the profession rather than through physical mobility), but once there, they create an infra-structure of service provision that is conducive to further productivity and gains in per capita income.

Fourth, the independent variables that have been invoked to explain the pattern of manpower distribution are so diverse that considerable care must be taken in understanding their inter-relationships. In particular, as Anderson and Marshall (1974) point out, the error must be avoided of assuming that variables which, in isolation, are shown to be associated with the DPR of areas, are necessarily cumulative in their effect. This may be the case under certain circumstances, but two elementary points of logic should be heeded. One is that a high correlation might exist between one or more of the independent variables, which would have the effect of one variable being used to some extent as a proxy for a second variable; the second is that the impact of one variable is likely to be modified or constrained by the operation of another. The analysis by Rushing and Wade (1973) offers a clear example of this. Responding to the commonly accepted finding that the provision of hospital facilities increases the attractiveness of communities to doctors (Williams and Uzzell, 1960), Rushing and Wade sought to establish the community contexts in which this relationship was strengthened or

diminished. Using AMA data for 1966 on the distribution of doctors for all 2,971 counties in the US, they derived a correlation of .52 between doctor-population ratios and hospital bed provision across all counties; but the correlation was eight times stronger in the greater metropolitan than in the isolated rural counties. The same point is made by the findings of Steele and Rimlinger (1965) and Marshall et al (1971) that the relationship between income level and DPR is much more marked in large urban than in rural areas.

Against this background of general comment about the difficulties of summarising the literature on the causes of location patterns, the reported studies can be broadly classified as of two kinds: those dealing with motivational explanations and those concerned with ecological explanations. This classification is not intended to reflect any profound theoretical differences of approach, but rather to summarise the two dominant strands that appear to characterise both the assumptions and the methods of reported studies. The motivational approach concentrates on the individual doctor and the 'reasons' for his choice of practice location. The problem of maldistribution is seen as the discrepancy between the sum of individual choices and the total needs of the social economy, and the solution therefore requires first, an understanding of the elements that enter into the individual's choice, and second, a policy that will either change those aspects of the environment which are endowed with negative qualities, or that will restructure the doctor's perception and evaluation of them. The method most commonly used in studies of this kind is a social survey of doctors designed to answer such questions as: what are the reasons that doctors give for their choice of practice area?; what do they find most attractive about their present locations?; what environmental features would they wish to avoid?; and so on. Such surveys may be valuable in uncovering the subjective perceptual and attitudinal dimensions of the matter in a way that the ecological analysts entirely miss, and they may yield

contributions towards a policy programme that would not be available from other sources. The results of such surveys, however, will be of diminished value unless analysed in the context of an understanding of the structural constraints in the free movement and location of doctors, and they are always open to the charge of positivist bias by those whose inclinations lead them more towards an ethnomethodological approach.

The ecological approach is more difficult to summarise. Rather than seeking an explanation for the distribution of doctors in terms of motives (whether economic, professional or cultural), this approach focuses on communities and community properties, and analyses the relationships between the structural characteristics of communities of which medical care is one element. The spatial location of doctors is thus viewed as part of a more general pattern of the social and economic differences between communities in which doctors themselves have little part to play. They, together with other service groups and institutions, are constrained in their locational patterns by the pre-existing spatial relationships between those community characteristics to which they typically respond. The few researchers whose work has been cast in this ecological mould have usually acknowledged the stimulus of Schnore (1958) and Hawley (1968) in suggesting the use of medical manpower as an element of community structure in testing the hypothesis that the spatial relations between individuals and institutions are reflections of their underlying social and economic relationships. The empirical studies have generally adopted a multivariate type of statistical analysis to relate the dependent variable (some form of doctor-patient ratio) to a range of independent area-based variables that are assumed to act as positive or negative inducements to doctors, the data being aggregated at whatever area units are available or deemed appropriate. A regression model is often used that enables the concomitant variations between the elements of the model to be quantified. For example,

Elesh and Schollaert (1972), using data on Chicago census tracts from the 1960 census, regressed two categories of DPR (primary care and other physicians) on population size, commercial activity, hospital bed provision, and the age, educational and racial structure of the population. The model enabled them to conclude that, holding the remaining variables constant, a one per cent increase within census tracts in the number of families with an income in excess of $10,000 would increase the number of doctors by 0.029.

An important contribution of the ecological approach is the insight that the maldistribution of medical manpower is not an isolated problem of health care delivery, but is one element of a wider socioeconomic process governing the distribution of all services. Doctors do not behave in totally idiosyncratic ways in their decisions of where to practise; rather, they are open to and constrained by a similar set of social and economic considerations as other professionals. The evidence for this is supplied by Rushing, who, using the 1966 AMA data on the nationwide distribution of US doctors by county, regressed the ratios of doctors and of other professional workers on median family income and degree of urbanisation (Rushing and Wade, 1973; Rushing, 1975). The results showed almost identical regression coefficients for both groups, and similar (though less marked) results were found for nurses and other para-medical workers. Evidence of a parallel process in Britain is found in the conclusions of Cooper and Culyer (1967), Maynard (1972), Hart (1971), Klein and Buxton (1975) and others that areas of the country which are deficient in one sphere of health care availability tend also to be deficient in related spheres. There is no general evidence in Britain, for example, of an inverse relationship between the supply of general practitioners and of hospital doctors, although such a correlation may be found to exist in some regions and areas. Clearly, the detailed mechanisms securing the spatial distribution of a particular profession will

vary from one profession to the next. The opportunities and constraints that play upon the individual, independent contractor who requires little capital equipment to practise his skills will differ from those affecting the professional worker employed in a bureaucratic organisation, and these in turn will differ from the structural constraints that face, for example, the surgeon who requires a complex array of capital plant and equipment, collateral skills (of anaesthetists and nurses), and various supporting services in order to practise his profession. Nevertheless, the very fact that the differing locational constraints and needs of different professional groups produce a common pattern of spatial clustering is further evidence of the strength of ecological or area-based variables over those of personal choice.

What, then, is the nature of the relationship between the results of motivational and ecological studies? With the exception of Anderson and Marshall (1974), the question seems to have been avoided in the literature, but the way it is answered may carry significant consequences for the initiation or development of policies based upon the results of empirical work. The view offered by Anderson and Marshall is that the ecological constraints and opportunities are sufficient in themselves to explain the distribution of doctors, and that the self-reported reasons which doctors give for their locational decisions are merely confirmations or rationalisations of behaviour patterns that are motivated by more fundamental considerations. Thus, they describe the preferences expressed by some specialists for city life or for a practice that is located near to family and friends as 'idiosyncratic' to the general tendency for specialists to cluster near to medical schools and large hospitals: the plain fact is, they argue, that such facilities provide important support for their activities that cannot be reproduced elsewhere. This example appears to take a special case to support an attenuated view of the importance of the ecological over the motivational approach.

It is obviously true that where doctors depend heavily upon supporting services and facilities, the distribution of those doctors will match the distribution of the facilities; but this type of explanation cannot account for the decision of any particular doctor to locate in town A rather than town B (assuming they both have the necessary facilities), nor does it explain how the necessary facilities come to be distributed in the first place. In the case of services and facilities on a somewhat more modest scale than a complete medical school, it is possible that the movement of doctors to a particular area will precede and generate the supply of supporting services rather than simply following a pre-existing pattern of service distribution.

It would seem, therefore, that a more dynamic explanation is needed of the relationship between the results of motivational and ecological studies. One possible approach is simply to regard the range of personal motivations existing among doctors at any point in time as an ecological variable. This would allow for the fact that the quantitative aspects of manpower distribution can apparently be explained almost entirely in terms of the properties of communities, but it would also allow the possibility that changes in the range of personal motivation could be reflected in a changed relationship between those properties and the resulting distribution for example, the importance that some doctors in a fee-for-service system attach to maximising their income, and also to maintaining professional links with the centres of excellence and innovation in medicine, are personal motivations that can not only be inferred from the results of ecological analyses, but are also reported in survey-type research. As long as these continue to be dominant motivations among a proportion of doctors, they can be regarded as constant variables in an ecological framework, apparently unrelated to the capacity of the other variables to account for a high proportion of observed variations in the spatial location of doctors. If, however, these dominant motivations change, either because doctors readjust the trade-off

between income maximisation and leisure availability, or because of a shift of interest away from the technological frontiers of medical progress towards the more traditional socio-medical tasks of 'whole-person' or 'family-based' care, then the possibility is open of substantial modifications in the impact of such variables as community income levels and medical-school location upon the distribution.

The purpose of stressing the relationship between the results of these two research techniques is partly to emphasise the extremely complex task of those responsible for relating the products of applied research to the development of policy, and partly to caution against a tendency to compartmentalise the results of reported studies into motivational and ecological boxes. Although it will be convenient to discuss the studies as though such a division existed, the total picture can only be assimilated through an awareness of the dynamic relationship of personal motivations and structural constraints in producing a particular pattern of distribution.

Since almost all of the reported studies of the causes of locational patterns are of American origin it is scarcely surprising that some measure of per capita income is commonly used as an independent variable, and the acceptance of a positive relationship between the income level and DPR of an area is now virtually axiomatic. As Aring (1972) observes, the pressures of an industrial world heighten the doctor's awareness of his own pecuniary interests and turn him into something of a man of business. The evidence is almost consistent: positive correlations have been reported between income level and DPR at the level of the state (Weiskotten, et al, 1960; Benham et al, 1968; Rimlinger and Steele, 1963), the county (Rushing and Wade, 1973) and the city sector (Terris and Monk, 1956), but the nature of the link is far from clear. Classically, it is the free play of market forces in the health sector that directs resources

towards those areas best able to command them; but this is scarcely a total explanation. Quite apart from the residual functions of perceived need and taste in determining the demand for care (which may well vary in unpredictable ways with variations in spending power), the operation of the market might be expected to produce a rather more even distribution of medical manpower throughout the United States than is the case. If doctors are motivated in their choice of a practice location solely by a desire to maximise their income, many newly-qualified doctors are likely to find better opportunities among the numerous communities devoid of manpower than among those already experiencing a relative surfeit. There must be values and mechanisms in addition to those of the market that attract doctors to high income areas and enable them to compete in circumstances that sometimes approach market saturation.

Two pieces of evidence appear in the literature which indicate the possible means by which a high ratio of doctors to population can be maintained in large urban areas. Rimlinger and Steele (1963) conclude in the first of their two papers that it is the fee schedules of doctors rather than the population income levels per se which best distinguish areas with high and low DPRs. If the income level of an area is sufficient to support high fee schedules, the total volume of work can be shared among a larger number of doctors with no diminution in the average income of each doctor. In areas with much lower fee schedules, by contrast, a similar total volume of work would have to be undertaken by fewer doctors if each was to receive a comparable income to his colleague charging higher fees. Provided doctors are willing to make the necessary substitution of leisure for income, the point at which the market becomes saturated may be capable of prolonged delay. A second means of supporting large numbers of doctors in high income areas in the US is suggested by the data collated by de Vise (1973), showing a direct relationship in 1970 between the per capita payment of Medicaid and Medicare subsidies in

each state and the number of doctors per 100,000 population. Federal dollars (which now account for more than a quarter of all doctors' bills) flow more plentifully to the doctor-rich than the doctor-poor states, thus acting as a kind of hiddent incentive to exacerbate the uneven location of manpower. Since many of these payments are allocated to inner-city residents, doctors in these cities can afford to live in the more attractive neighbourhoods through a combination of wholly-private and federal-subsidised practice.

The argument that in a fee-for-service system the distribution of doctors will be determined by wholly unrestrained market behaviour is thus unsupported: doctors seem willing to some extent to sacrifice an element of income in order to enjoy an increased amount of leisure or other non-financial benefits which would not be available to them in locations where income could be maximised. This conclusion carries important implications not only in fee-for-service systems but also in salaried and capitation systems which embody an element of weighting or incentive in favour of under-serviced areas. It is also consistent with the general conclusion of Glaser's (1970) world survey that higher pay alone has never succeeded in attracting doctors into country towns and rural areas in sufficient numbers. Indeed, the overwhelming attraction of large centres of population is the second dominant theme (together with income levels) in the American literature on doctor location. At the national level, Reskin and Campbell (1974) found that population size alone accounted for almost 97 per cent of the variance in the distribution of all doctors across the 22 greater metropolitan areas in the US in 1966, and a linear relationship was found between population size and each of six specialty groups. Marden (1966) likewise found very high correlations indeed between population size and DPRs for all metropolitan areas:

.98 for all doctors, .99 for general practitioners and .97 for specialists. Rushing and Wade (1973) report a linear relationship between the proportion of urbanised population and the DPR for all counties in the US in 1966, and similar results at the intra-state level have been reported from Kansas (Marshall, et al,1971) Upstate New York (Parker, et al, 1969) and North Carolina (Fein, 1954).

The interpretation of these results is problematic beyond a broad statement that doctors generally have a preference for working in large, expanding urban areas. This statement, however, is essentially descriptive, not explanatory, and it must be hedged with qualifications. There is some evidence, for example, that population size is a better predictor of the distribution of specialists than of general practitioners (Dickinson, 1954; Joroff and Navarro, 1971); and the conceptual and empirical distinctions between 'urban areas' and 'population size' are weak in many of the studies. Moreover, an emphasis on the sheer size of communities as a factor in their attractiveness to doctors conceals the qualitative aspects of the population that may be equally important attractions.

The hypothesis that doctors tend to seek practices and locations with characteristics consistent with their own status preferences has been tested explicitly by Elesh and Schollaert (1972) in Chicago. Using race as the indicator of status, they posed the question of whether, having controlled for the three major components of demand (ability to pay, disposition to seek care and medical need), doctors were less likely to be found in predominantly black areas of the city. The results of the analysis indicated a positive answer, although the explanatory power of the model was low, suggesting that important variables in the intra-city location of doctors had been omitted from the study. A similar study by Kaplan and Leinhardt (1973) in Pittsburgh drew comparable conclusions. Using a multiple regression analysis of six variables, they found that

the proportion of coloured people in the population accounted for some of the variation in the distribution of doctors between census tracts in the city, but less than the proximity of short-term hospitals or the presence of large amounts of commercial zoning. Other investigators reporting a negative correlation between the concentrations of coloured people and of doctors include Reskin and Campbell (1974) and Marden (1966), the latter of whom found the variable to be a better negative explanation of the location of general practitioners than of specialists. A stronger status-related variable in the distribution of specialists was found to be the median years of education completed by the population, which is also interpreted by Marden as an attempt by doctors to assemble a practice population with characteristics most closely resembling their own. Parker et al (1969) likewise found in their study of eleven counties in Upstate New York that counties achieving an absolute net gain of doctors over the years 1940-1960 had populations with a median number of school years 10 per cent higher than those in counties suffering an absolute net loss of doctors over the period. Similar results are reported from North Carolina by Fein (1954).

A third measure of population structure that has appeared in several studies is that of age. Joroff and Navarro (1971), in a complex analysis of the relationship between 10 community characteristics (independent variables) and 27 doctor-population ratios (dependent variables) across the 299 SMSAs in America in 1966, found the proportion of the population over the age of 65 to be the best predictor of the distribution of general practitioners, though not of specialists (for whom, as noted above, community size was a better predictor). Such a result might be interpreted as a tendency on the part of general practitioners, at least, to locate in areas where the need (and, since the passage of the Medicare legislation in 1965, the demand) is greatest: elderly people have high doctor-consultation rates in both the United States and Britain. A more explicit test

of the propensity of doctors to respond to geographical variations in health levels is offered by Reskin and Campbell's (1974) study of the 22 greater metropolitan areas of the US. Using data from the National Health Survey on days of bed-disability, sickness absence and self-reported acute conditions as indicators of health levels, a positive correlation was found between the volume of morbidity in the metropolitan areas and the supply of each of six categories of specialists. The interpretation of this finding is highly problematic: Reskin and Campbell regard it as evidence of the responsiveness of supply to demand, but alternative hypotheses about the incidence of DOMP and about the responsiveness of demand to supply are also suggested.

A further set of explanations for the pattern of doctor distribution concerns the location of hospital facilities and centres of medical education. It is argued that most doctors regard the access to hospital facilities and to colleagues as necessary to their professional development, and will tend to settle in areas offering these kinds of professional contacts. The construction and improvement of hospital facilities was suggested thirty years ago as a possible remedy for the shortage of manpower in rural areas and small communities of the United States (Mountin, et al, 1945) and the enabling legislation was passed the following year (the Hill-Burton Act). The data discussed above on the post-war continuation of the trend towards urban practice suggest that the most optimistic hopes have not been fulfilled, although there is some evidence of success in the programme. Williams and Uzzell (1960) studied the effect on manpower recruitment of the construction of 42 hospitals in small communities in Georgia between 1949 and 1956 under the Hill-Burton Programme; they found that all the communities gained some doctors during the period (the rural communities gaining relatively more than the larger towns and cities), and they continued to do so even after the initial impact of the hospital had passed. Against this must be set

the experience reported by Durbin (1973) of a group of counties in Illinois, some of which constructed new hospitals between 1950 and 1960 under the Hill-Burton Programme and others of which remained without hospitals during the period. No differences occurred between the two groups of counties in the recruitment of manpower; indeed, all the counties suffered a net loss. The conclusions drawn by Rushing and Wade (1973) from these studies and from their own data (page 31) are first, that the Hill-Burton Programme at least enabled poorer communities to get a fair share of resources for new hospital building, and second, that the trend towards urban practice might have been even greater but for the programme.

The existence of hospital facilities appears to exert a stronger influence on intra-urban locations than on the urban-rural distribution. Ratios of hospital beds to population have been found to be associated more closely with the DPR in small than in large American urban areas (Marden, 1966; Reskin and Campbell, 1974), and also to be related more closely to the distribution of specialists than of general practitioners. Joroff and Navarro's (1971) analysis of the 299 SMSAs in America showed the availability of hospital beds to be the best predictor of the distribution of all surgical specialists; and Scheffler(1971), using the Pearson product-moment coefficient on data for all the states in 1963-7, derived correlations of .75 and .70 between the number of hospital beds per capita and the number of medical and surgical specialists per capita respectively, but a correlation of only .43 for general practitioners. Results consistent with these emerge from the American studies of doctors' personal views and preferences. Bible (1970) found that doctors working in isolated rural areas away from the large centres of education and research tended to stress the self-sufficiency of their work and their role as community and professional leaders as positive attractions of their locations; but this style of work is likely to be more accessible

to the general practitioner than to the specialist. Parker and Tuxhill (1967) found that an important motivation distinguishing doctors in small (<25,000 population) and large communities in the Rochester (NY State) region in 1964 was the desire to build a busy practice early in one's career; again, this is more likely to be achieved by those in general rather than specialty practice, working in relatively under-serviced areas.

The nature of the link between the location of medical schools and the distribution of medical manpower is somewhat different to that of the hospitals. Three stages appear to be involved. First, regions produce medical school students in rough proportion to the number of medical places available within them (Council on Medical Education and Hospitals, 1923); second, students wishing to study medicine tend to seek places within their home regions (Flexner, 1910); third, medical graduates tend to practice in areas near to their medical schools (Yett and Sloane, 1974). Places with no centres of medical education are thus at risk of a cumulative deprivation: they fail to send their share of students to medical school, and fewer of those they do send are likely to return home to practise than would be the case if they were educated within their home locality.

The results of studies that have incorporated the availability of medical school places as an independent variable in ecological-type an alyses are conflicting. Reskin and Campbell (1974) actually found a negative association between the variable and the DPR across the 22 greater metropolitan areas of the US in 1966, whilst Joroff and Navarro (1971) found it to be the best predictor of the location of all doctors and all medical specialists among the 299 SMSAs. Scheffler (1971) derived a product-moment coefficient correlation of .69 between the total number of doctors per population and the per capita provision of first-year medical school places across the 50 states in 1963-7; but,

consistent with Joroff and Navarro's findings, the correlation was much higher for specialists than for general practitioners. Scheffler found an even higher correlation (.90 for all doctors) with the number of internship places per capita, but again the correlation was very much higher for specialists (.93 for surgeons) than for general practitioners (.28). The potential importance of internship places in attracting manpower was also noted by Mountin et al (1942a), who found that states achieving the greatest gains over the period 1923-1938 were generally those with the greatest number of internship places. The use of preceptorships (schemes in which medical students spend part of their clinical training outside the medical school under the auspices of practising physicians), on the other hand, does not appear to be effective in inducing newly-qualified practitioners to settle in rural areas (Steinwald and Steinwald, 1975), although such schemes may well have other educational merits. A conceptually ambitious task was undertaken by Breisch (1970) in attempting to relate the quality of medical school education to the distributional pattern of doctors between SMSAs and other areas in the US in 1966. Using the per-student operating expenditures of the medical schools as an index of their quality, Breisch found a 2 per cent increase in the proportion of medical graduates practising in SMSAs for each $10,000 increase in per-student operating expenditures. The highest quality schools in 1966 were supplying 8 per cent more of their graduates to the metropolises than to the lowest quality schools.

The most complete attempt in the United States to relate the main geographical points of reference in doctors' lives to their locational choices has been made by Weiskotten et al (1960) using data from an ongoing study of every fifth class graduating from all American medical colleges between 1930 and 1950. Among the 1930 graduates, 21 per cent went into practice in the same city as their medical school and 36 per cent in the city of their residence prior to entering medical school. The corresponding percentages for the 1950 graduates were 15 and 25.

At the level of the state, 56 per cent of the 1930 graduates practised in the same state as their medical school and 66 per cent in the state of their prior residence; among the 1950 graduates the percentages were 46 and 58 respectively. The authors concluded from these figures that, although the commitment to a familiar location had apparently weakened over the twenty years, the attraction of the medical school and, even more markedly, of the family home residence, remained strong. In a subsequent analysis of the 1950 graduates only, Weiskotten plotted the combined effect of the location of the medical school, the place of family residence prior to admission to medical school, and the location of internship and residency training. Among the 1,040 graduates in the sample who were practising in the same city as any one (or any combination) of these four events, the greatest pull was exerted by the place of family residence alone (217 graduates), followed by all four locations (187 graduates) and the location of residency training alone (142 graduates). The least attractive combination was the location of the medical school and internship. Of the 1,566 graduates in the sample who were practising in the same state as any combination of the four events, by far the greatest attraction occurred when all four events were located in the same state as their area of practice. Comparable results have also been noted in studies of dental manpower (Wechsler, et al, 1973; Williams, et al, 1969).

The importance of the home background of doctors in influencing their choice of a practice location is further emphasised by studies of the size of the 'community of orientation' of doctors. For example, those practising in small communities are more likely to have been reared themselves in small communities than those practising in large communities. Bible (1970) found that although no more than a third of a sample of all doctors in non-metropolitan counties in the US in 1967 had been reared in communities of less than 2,500, the proportion rose

to 49 per cent among those in the sample who were practising in communities of a similar size, and dropped to 21 per cent among those practising in communities with 25,000+ population. Diehl (1951), in a survey of all medical graduates from the University of Minnesota over a fifteen-year period, found that 58 per cent of graduates from homes in small communities (less than 5,000 population) were practising in communities of a similar size, compared with 22 per cent of graduates from large cities. Among the 1950 graduates in Weiskotten et al's (1960) study, 36 per cent of those located in communities of less than 5,000 population originated from communities of a similar size, and only 15 per cent originated from cities of 500,000+ population. Conversely, among those practising in the large cities, two-thirds had family origins in cities of a similar size and fewer than one-tenth had originated from very small towns. Similar results are reported also by Champion and Olsen (1971), Cooper et al (1972), and Parker and Tuxhill (1967). The summary in the latter study offers an appropriate ending to this section. 'The majority of small-community physicians surveyed grew up in a small community and chose to practise there because they liked small-community living and had the opportunity to quickly build busy practices. The majority of large-community physicians grew up in urban areas and chose to remain there because of a preference for urban living and the availability of large medical centres.'

Policies for change

Various strategies have been used, or suggested for use, by central and local governments to effect what is perceived to be a more equitable spatial distribution of medical manpower. Three general observations may be made about these strategies before describing their substance. First, corrective policies have rarely been aimed at explicitly identified factors that are held to be causal variables in maldistribution. Most

policies, including those in Britain (see chapter 2 and 3), appear to be based more upon the unsubstantiated belief that all doctors have their price (the essential problem being that of discovering the minimum effective price) than upon specific policies to modify or change demonstrable causes of undesired locational patterns. Moreover, no example has been found in the literature of a controlled trial of alternative strategies. The reasons for this are doubtless the complexity of constructing such a trial and the unacceptability to the medical profession of involvement in it. Similar problems occur in controlled trials of clinical treatment (Cochrane, 1972). The absence of trials, however, means that the level of understanding the effectiveness of different strategies is more pragmatic than scientific. Observations of manpower movements and distributions are commonly made before and after the introduction of a particular measure, and any favourable changes are generally attributed to the measure itself. Thus, Williams and Uzzell (1960) readily link the increase in doctor manpower in certain parts of Georgia to the introduction of new hospitals under the Hill-Burton Programme without knowing the possible effects if the hospitals had not been built or if a different type of health facility had been constructed. Comparable problems occur in evaluating the impact of the designated areas allowance on the distribution of GPs in England; they are discussed in that context in chapter 5.

Second, as Rushing's (1975) thesis emphasises, the profound effects of basic socio-economic processes on the spatial location of professional services and institutions implies an ultimate solution beyond the medical care system, perhaps even beyond direct administrative action and government regulation. The general thrust of the ecological approach to manpower distribution identifies the sources of fundamental change in distributional patterns in a profound reorganisation of the structure of communities; but such change, if it occurs, is more likely to result

from spontaneous social action than from measured governmental activity. Two consequences stem from this analysis for the development of micro-policies: that policy-makers must be careful to distinguish between causal factors that are and are not amenable to change in predictable ways; and that successful policies must be broadly consistent with the basic movements in society. Rushing argues that the failure of many policies in the United States has resulted in large measure from a disregard of these constraining factors. His own preferred solution explicitly acknowledges the continuing uncompetitive nature of many American communities, and seeks to alleviate their shortage of medical manpower by linking them through referral systems with medical centres in areas offering greater occupational opportunities.

Third, the pursuit of redistributional strategies must take account not only of the broader macrosocioeconomic features of society, but also, more narrowly, of the total health care context within which the strategies are located. It is simple but naive for researchers to identify one or more variable with a high capacity to explain the observed distribution of doctors between area units, and to recommend appropriate changes in that variable as a remedy for the maldistribution. Many of the studies reported in the previous section conclude in this way. Scheffler (1971), having demonstrated a high correlation across states between the supply of doctors and the number of internships, recommends the provision of more internship programmes in under-serviced areas. Wechsler's (1973) finding of the importance of the family home area in the locational patterns of dentists prompts his advice to dental schools to bias the recruitment of students in favour of those from rural and low-income areas. Parker et al (1969) conclude on the basis of their results that the provision of more rural health centres and day-release programmes to enable rural doctors to work in larger medical centres would help to resolve the manpower shortage in isolated counties. Each of these

strategies, and the many others that have been proposed, may in isolation achieve some change in a desired direction, but it is clearly impracticable to advocate the adoption of every strategy with a demonstrable chance of success, not only because their interactive effects upon manpower distribution are largely unknown, but also because of the broader consequences which such a wide-ranging programme of change would have upon the total structure of health services. The maldistribution of medical manpower is rarely seen as the overriding problem in any health service, and policies for its correction are likely to be adopted only if they are felt to have a minimal, or incidentally beneficial, effect upon other current policies. It is perhaps for this reason that most government attempts to redirect the location of doctors have ignored the structural factors in maldistribution in favour of cosmetic attempts to improve the financial or professional attractiveness of chronically underserviced areas.

An administratively simple way of enhancing the gravitational pull of a region or locality is through a loading of the incomes available to doctors practising within it. The strategy rests upon the implicit assumption that spatial differentials in income levels can be introduced that are sufficiently low to be politically acceptable to the medical profession yet sufficiently high to persuade a certain number of doctors to forego some valued environmental or professional advantage in favour of a larger income. Glaser (1970) documents the experiences of several countries in pursuing such a strategy.* In Greece, the salary scales of the medical profession provide a large differential in favour of jobs in the provinces, intended to attract doctors away from the largest cities where they find the best opportunities for private practice; but monetary advantages alone have proved insufficient, and doctors are now forbidden to practise in the large cities in Greece until they have worked for specified periods in the provinces. In France and Sweden, the higher

* The information in the following two pages is summarised directly from Glaser. The original sources have not been consulted.

fee schedules for doctors practising in Paris and Stockholm, though reduced in the former case in 1965, have merely exacerbated the disproportionate concentration of staff in the metropolitan areas. Even in countries where doctors are paid a salary (this being the method of payment most easily adaptable to induce movement into under-doctored areas), financial incentives alone have proved insufficient. Since 1942 general medical practitioners in the Soviet Union have received salary differentials based upon geographical location and years of experience, yet for political reasons the higher salaries available in rural districts have failed to achieve the desired degree of redistribution. Glaser estimates that a rural doctor would require a salary at least equal to the service chief of a hospital, but such a deviation from the hierarchy is not customary in Soviet salary scales. As a result, many urban hospitals and polyclinics are overstaffed, while many rural medical posts are not filled. A similar situation obtains in Yugoslavia (Steinman, 1974). In Egypt, where government salaries are intended to provide no more than a minimum income which doctors can augment from private practice, the differentials have never been large enough to attract sufficient doctors out of the cities. The ambitious programme of rural health centres was delayed for many years because the rural health officer received a lower salary than the urban hospital specialist and few doctors were willing to accept such posts. Indeed, five years after the programme had begun in 1949 only five full-time doctors had been hired and many rural centres were staffed for only a few hours a week by private practitioners commuting from the towns and collecting part-time salaries. A similar problem faced the Turkish government at the inception of its national health service in 1964: there, too, the low salary scale (the Barem scale) led to such a gulf between the staffing ratios of urban and rural areas that enormous differentials were introduced in favour of rural practice. Doctors practising in the less developed areas of Eastern Turkey receive an additional allowance on a sliding scale depending upon the degree of

under-development of the area; in the worst areas these regional increments could amount to several times the basic rate of the Barem scale, but their effect on manpower distribution has been slight.

The experience of Israel epitomises the widespread conclusion that for most doctors the deprivations of geographical isolation usually offset even the most generous rural subsidies. Rural doctors in Israel may receive between 18 and 38 per cent additions to their basic salary and cost of living allowance, the amount increasing by two per cent for each additional year spent in rural practice. These increments, coupled with regular increases in basic salary and additional payments to rural doctors with large lists, would mean a serious drop in income for doctors returning to urban practice after a spell in the country, and indeed they worked successfully as long as Israel's medical profession consisted mainly of older immigrants trained in European medical schools. For a while in the 1950s, Israel had a wider geographical distribution than almost any other country. But the new medical schools at Jerusalem and Tel Aviv were producing a generation of doctors less committed than their elders to the needs of the nation as a whole and more absorbed in the kind of advanced clinical work which they encountered in their American-style graduate programmes. Few of these doctors have responded to the salary differentials and selected rural general practice; most have either settled in Israeli cities or emigrated. By 1965, therefore, the government was forced to adopt the Greek strategy of placing a statutory obligation on young doctors to serve for at least three years in a newly developing region before final certification.

An alternative to the direct loading of salaries and incomes of physicians in under-serviced areas is the availability of grants, loans and scholarships to students who undertake, when qualified, to practise for a specified period of time in the region offering the money. In the pre-war years in America, grants were made available by the Commonwealth Fund for students during their medical education on condition that they practised

for at least three years in rural areas in Main, Mississippi or Tennessee (Aring, 1972). In fact most students failed to fulfil their contracts in full, and repaid the outstanding portions of their grants on moving to urban practices. In 1946 the Mississippi State Medical Education Scholarship Programme was founded, giving scholarships and loans to medical students who contract, following their internship, to practise in a Mississippi community of no more than 5,000 population. By 1960 some 350 students had benefited from the programme, and it was judged to have succeeded in its primary objective (Pankratz and Davies, 1960). At much the same time the AMA Council on Rural Health organised a consortium of 17 states offering a variety of scholarship and loan programmes administered through state and county medical societies. Many recipients of the loans have apparently settled permanently in small communities (Turner, et al, 1955), although more recent reports indicate a growing number of students repaying the loans in preference to working in rural areas (Petersdorf, 1975). Similar schemes have also been tried in Canada (Lucas and Himelfarb, 1971).

In fee-for-service systems, where an income loading in favour of under-doctors areas is not possible to the same extent as in salaried systems, more fundamental solutions have been proposed. To the extent that supply is sensitive to demand, and to the extent also that effective demand is conditional upon the ability to pay, it has been argued that a redistribution of manpower is only likely to occur if effective demand can be equalised on a geographical basis. This mode of analysis leads either to the passive conclusion that the worst disparities in manpower distribution will be automatically corrected with the long-run tendency towards a regional equalisation of per capita income (Rimlinger and Steele, 1963), or to the active conclusion that ways must be found, either directly or through third-party insurance, of accelerating the tendency by boosting the personal resources available for health-care expenditure in the low-income,

under-manned localities (Feldstein, 1973). The modification of market operations as a solution to the distribution problem has, however, been severely criticised. Rushing (1975) points out that the effect of equalising demand potential does nothing about the causes of maldistribution that are essentially unrelated to the economic motivations of doctors. 'These include institutional differences in communities that lead to differential productivity rates, physician preference to practise in a setting resembling the community in which one was reared, and the concern for social and cultural opportunities for oneself and one's family.' Navarro (1974) questions the assumption of consumer sovereignty in the health market that is implied in the solution of equalising demand. He argues that, in the provider-consumer relationship in the American health sector, the provider has far more influence than the consumer in the allocation of resources: the system is oriented primarily towards the providers' interests and only secondarily towards the consumers' interests. Thus, as Rimlinger and Steele (1963) allow, there may be considerable scope for doctors to neutralise the tendency towards an equalisation of per capita income, and to continue indulging their taste for urban living, first by stretching the fee schedules to the maximum range the market will bear, and second by making further substitutions of leisure for income. Moreover, as both Elesh and Schollaert (1972) and Rushing (1975) point out, the effect of measures in the United States to increase the resources available to people with low incomes (whether through National Health Insurance or an extension of Medicaid) will benefit large numbers of inner city residents as well as those in rural communities, increasing still further the resource-base supporting a disproportionate clustering of doctors in the vicinity of metropolitan areas.

An alternative set of proposals for modifying some of the structural factors perpetuating a maldistribution of medical manpower centres on the institution of medical education. It has been argued, for example, that

by increasing the total supply of manpower available at the national level, an overflow of doctors will occur from well-endowed to poorly-endowed areas (Association of American Medical Colleges, 1969). Beyond a certain level of supply, the argument must be valid. Even in non market-oriented health care systems, a point will eventually be reached when supply exceeds demand in the attractive areas and additional doctors are forced to locate in other areas if they wish to practise medicine in their own country. However, the number of additional doctors required to achieve a state of natural saturation (and hence the cost of training them) is unknown, and governments have naturally avoided commitment to such a policy. A more modest increase in the supply of doctors would certainly enlarge the pool of manpower that is potentially available for under-doctored localities, but there is no reason to assume that, in the absence of negative controls over where doctors can locate, the additional manpower will distribute itself on a different basis than the existing stock. Communities that are unable to attract any of the existing pool of available manpower are unlikely to be much more successful just because the pool is increased by 10 or 20 per cent. Indeed, the evidence presented by Rushing and Wade (1973) actually suggests a negative link. Between 1950 and 1971, when the output of doctors in the United Stated rose by 54 per cent, the number of counties without an active doctor more than doubled, from 64 to 133. On the assumption, however, that increases in the stock of manpower will be distributed in a similar way to the distribution of the existing stock, it may be possible at times of manpower expansion for the relative variations in the DPR to remain constant between area units, whilst increasing the actual DPR to a minimally acceptable level in some units. This would offer a plausible explanation for the observation in England that the proportion of family doctors in designated areas (i.e. in areas with average list sizes in excess of 2,500) varies inversely with the total availability of general practitioners (see chapter 5).

A second contribution that the medical school might make towards an

alleviation of the problem is through its selection procedures of new students. The consistent tendency of doctors to practise in or near the areas in which they were reared has led some writers to advocate a bias in the selection procedures of medical schools in favour of applicants from under-doctored localities (Mountin, et al, 1945; Wechsler, et al, 1973). Associated with this proposition is the further argument that the selective siting of new medical schools and the expansion of existing schools in regions with unfavourable DPRs would encourage a larger proportion of qualified school-leavers to choose medicine as a career. Legislative action along these lines has been taken in the United States: in 1971 an Act was passed by Congress authorising schools of medicine to 'establish and operate projects designed to identify and increase admissions to and enrolment in schools of medicine ..... of individuals whose backgrounds and interests make it reasonable to assume that they will engage in the practice of their profession in rural or other areas having a severe shortage of personnel' (US Congress, 1971). Other programmes have included the National Health Service Corp and the initial funding approved by the Nixon administration for eight new medical schools to be strategically located throughout the United States in localities with persistent recruitment problems. No reports of the results of these projects and programmes have come to hand.

Whatever the theoretical attractions of such policies, it seems unlikely in practice that medical schools and universities will subjugate their broader interests to accommodate an instrumental role of this nature. Medical schools are unlikely willingly to abandon the traditional criteria of selection of students in favour of a geographical bias towards applicants from under-manned localities; and a university desirous of acquiring a new medical school may not readily concede the claim to a competing university that happens to be located in a region or area of manpower shortage. Other substantive counter-arguments are made by Rushing (1975).

He argues that the relationship between the presence of a medical school and the concentration of doctors (on which the case for the selective siting of new schools rests) is probably not a causal relationship. Part of the association, Rushing suggests, is spurious, because the staff attached to a medical school are usually counted as part of the medical population of the area; but it may also be the case that medical schools and clinically active doctors are both attracted by the social and economic character of the surrounding area. 'Medical schools are not located in isolated rural areas for much the same reasons that most practising physicians are not located there. They tend to be located in communities with populations large and dense enough to provide sufficient clinical material on which both medical education and medical practice can thrive.' Rushing also argues that a recruitment bias in favour of medical school applicants from low-income rural areas is also unlikely to achieve much success unless linked with a type of training that encourages such students to become generalists capable of thriving away from large centres of medical technology. His analysis of data from the American Association of Medical Colleges longitudinal study of medical graduates in 1960 showed that the tendency for doctors to practise in communities similar to those in which they were reared was much stronger among generalists than specialists. Since generalists constitute a small and declining proportion of all physicians in America (Fein, 1967), the selection of more medical students from poorer communities would not in itself greatly influence the way physicians are distributed.

The failure of the American medical care system, with its mixture of fee-for-service payments backed by private insurance and federal aid and a growing emphasis on pre-paid schemes and health maintenance organisations, to secure a more desirable geographical spread of manpower has led some recent writers to conclude that only a direct control over the supply and location of resources will suffice. It is argued that the structural

influences in the socio-economic system producing the observed forms of spatial clustering are so pervasive that their effects can only be counteracted through direct regulatory control. In a weak form, the argument leads to proposals such as those of Aring (1972), who would like to see young doctors offered a choice between the military draft and two years' practice in an under-serviced area; and of Fein (1972), who argues simply for a compulsory two-year period to be spent wherever the need is deemed to be greatest. In its stronger form, the argument leads into more radical proposals about the institutional democracy of the health sector. Navarro (1974) argues for 'a strengthening of the planning and regulatory responsibilities of the public sector by investing government with regulatory power over physical and human resources'. Ideally, Navarro wishes to see a 'certification of need legislation', through which the human health resources in states and areas would be catalogued to identify overserved and underserved areas, and a restriction placed on the location of new doctors in the overserved areas. That is, <u>physicians would not be told where to practise, but where not to practise</u> (Navarro's italics). The notion is immediately dismissed as impracticable because of its total incompatibility with American medical traditions, but the negative control of the location of family doctors has been a central part of the regulatory processes in general practice in Britain since 1948. It is to the British experience, therefore, that we now turn.

CHAPTER TWO

THE HISTORY OF THE DESIGNATED AREAS

The background to the National Health Service Act

A major aim of the 1946 National Health Service Act was to achieve a fairer distribution of medical care resources than under the pre-war system. There is some disagreement about the real extent of mal-distribution of doctors in the decade before the war, but most commentators agree not only that a wide gulf existed between areas with the best and worst provisions, but also that these differences corresponded roughly with the socio-economic composition of communities. Titmuss (1950) notes that the gross overcrowding of the London specialist population was accompanied by an abundance of general practitioners in the well-to-do and supposedly healthier districts', and Eckstein (1958) records that 'places like Harrogate were gorged with general practitioners while working class areas nearby, in cities like Wakefield, Leeds and Bradford were comparatively starved for them'. The PEP Broadsheet of 1944, from which both Titmuss and Eckstein drew much of their data, commented that the existing distribution of medical resources was 'at present haphazard ... and determined primarily by the income level or the rateable capacity of the locality. The National Health Insurance does not appear to have influenced the distribution of doctors in more than a minor degree ... and one of the 1944 White Paper's reasons for rejecting a mere extension of health insurance is that the NHI scheme affords no effective means of ensuring a proper distribution of doctors' (Planning, 1944). In spite of a few cautionary opinions, notably from the Jewkeses (1952), who rightly draw attention to the inadequacies of evaluating distribution solely in terms of relative population sizes, it seems safe to conclude that the concern about uneven list sizes expressed from many quarters during the years leading up to the 1946 Act reflected a situation in which there was not only felt to be a substantial and indefensible geographical maldistribution of doctors, but also where the natural forces

tending towards equalisation were at best very slight. The increase in the number of doctors per 100,000 population between 1911 and 1931 was very similar for all counties irrespective of their doctor-patient ratios in 1911, indicating that the large increase in medical manpower during this period did not result in any selective improvement in the less well-doctored areas (Jewkes and Jewkes, 1952).

The first mention of formal machinery to control the location of GPs was made in the 1944 White Paper (Ministry of Health, 1944) which envisaged the establishment of a central executive body, composed mainly of doctors and to be known as the Central Medical Board. The Board would, amongst other things, have powers of negative direction over GPs to influence their geographical distribution throughout the country. Following the publication of the White Paper a detailed questionnaire was sent to all members of the British Medical Association (BMA), the results of which showed a small majority of the medical profession as a whole (57 per cent) and also of general practitioners (51 per cent) to be in favour of the proposed measures, but the poll was repudiated by the Association's leaders (Eckstein, 1958). In the ensuing discussions the profession's negotiators seem to have persuaded the government to drop the idea of control by the Central Medical Board, for no mention of it appeared in the revised plan (Forsyth, 1966). Instead the Ministry proposed a part-salary element in the system of remuneration which could be varied to attract doctors to needy areas (Willcocks, 1967). The satisfaction which the BMA leaders doubtless felt from their success in these negotiations was, however, short-lived. In the 1945 general election the Labour Party was returned to power not only committed in large measure to the 1944 White Paper, but also with a resolute Minister of Health in the person of Aneurin Bevan. When the National Health Service Bill was eventually published in 1946 it contained legislative proposals for a new central Medical Practices Committee (MPC), and it reverted to

the earlier idea of the White Paper by giving the Committee powers of negative control over the residential settlement of GPs. The Bill, understandably, angered the BMA, and yet another plebiscite was organised; but the cause was hopeless and after an uneventful passage through Parliament the Bill became law in November 1946. Section 34 of the Act required the Minister to appoint a Medical Practices Committee, and thus was institutionalised the means of controlling the distribution of family doctors.

1948-61: post-war improvements

Right up to the appointed day in 1948 the BMA continued to resist any threat to the freedom of movement of doctors, and the Medical Practices Committee was constituted in an atmosphere of hostility and suspicion, even though seven of its nine members were doctors. But by the end of 1948 the Association had begun to temper its hostility in the light of the experience of GPs embarking upon National Health Service practice. As more people registered with their doctors before and after 5 July, the uneven distribution of practitioners became increasingly apparent. Some found they had very small lists of NHS patients, and within the first few months of the new service many were applying to the MPC to have their areas declared over-doctored and thus closed to new applicants (Stevens, 1966). Negative direction had begun, largely on the initiative of the rank-and-file members of the profession.

The early fears of the BMA about the role of the Medical Practices Committee were in fact to prove groundless. In its first report in June 1949 the Committee noted that the steady expansion in the number of doctors had already begun to effect the redistribution of practitioners (Medical Practices Committee, 1949b). Instead of taking drastic redeployment action the Committee therefore began to develop criteria for classifying medical practice areas, based upon data and recommendations from the local executive councils. Four types of area were originally

created, but, following the Danckwerts award in 1952 (one element of which was to discourage large list sizes), these were reduced to three. A fourth type was restored in 1962, and the current classification is as follows.

Type of practice area	Average list size	Right to practise
Designated	over 2,500	Encouraged
Open	2,201 - 2,500	Automatic
Intermediate	1,800 - 2,200	Problematic
Restricted	under 1,800	Normally refused

In designated areas the right of practice was (and still is) automatically recognised, and doctors wishing to set up new practices in these areas were encouraged to do so through a financial grant known originally as the fixed annual payment and changed in 1952 to the initial practice allowance. In open areas admission to the medical list is usually automatic; in intermediate areas applications might be refused; and in restricted areas applications are normally refused, even as replacements for outgoing practitioners.

The combination of negative direction and positive financial incentive worked well in the early years of the service while the number of incoming family doctors was increasing. Indeed, by 1951 the question was being raised of whether too many doctors were entering general practice. The evidence showed that a permanent position (i.e. as a principal or assistant with a view to partnership) was difficult to achieve, and a Lancet editorial in August of that year concluded that England and Wales had an annual surplus approaching 200 general practitioners, (Lancet, 1951). However, the effect of the fierce competition for partnerships (there were as many as 100 applicants for each vacancy) hastened the movement of doctors to

the most needy places, and the Medical Practices Committee was able to note in 1953 an 11 per cent increase in the number of doctors in areas which had been designated in 1948 and a decrease of almost 10 per cent in restricted and intermediate areas (Medical Practices Committee, 1953). The result was a rapid 'de-designation' of many areas, a trend which continued throughout the decade (table 2.1). The period between 1952 and 1961 saw a dramatic reduction in the extensiveness of designated areas in England and Wales: the percentage of NHS patients in these places fell from 52 to a mere 17, and the number of principals fell from 7,596 in 1952 to 2,888 in 1961.

By the middle of the decade all the statistical indications seemed favourable, and hardly any public or professional concern was expressed over the distribution of GPs. Rather, the continuing unease within the profession centred around a potential overloading of the market. Even the Medical Practices Committee had raised the question in 1954 of whether an excess of general practitioners might not be in sight. In the same year the Cohen Committee (Central Health Services Council, 1954) advocated an enquiry into the need for controlling the intake of medical students, and the new committee, chaired by Sir Henry Willinck, was constituted the following year. In its report in 1957 the majority of the committee proposed a 10 per cent decrease in the intake of medical students from the earliest possible date (Central Health Services Council, 1957). There appeared at the time to be many cogent reasons for accepting this recommendation, for all the evidence seemed to indicate a dwindling demand for medical manpower, but it soon became clear that the findings of the committee were based upon inaccurate population projections and forecasts (Lafitte and Squire, 1960). In any case the intake of medical students had been declining in the years leading up to 1957, and the medical schools made no move to accelerate the rate of decrease.

1961-6: the formulation of a policy

For a few more years the proportions of principals and patients in designated areas continued to fall, but the effect of the reduced intake of medical students in the latter half of the 1950s began to appear in the early 1960s in the dwindling output of British graduates (Royal Commission, 1968). Only 1,511 British medical students graduated in 1963-4 at a time when more doctors were choosing hospital careers and many were emigrating (Review Body, 1968; Morrison, 1968). Consequently the supply of general practitioners failed to keep pace with population growth, and from 1958 onwards the average list size of principals in England and Wales rose steadily (table 2.1). By 1966 it had passed the high point of 1952, and by 1969 the average for the country as a whole was only twenty-one short of designation. The trend was also reflected in the spread of the designated areas: increasing numbers of areas were becoming designated as list sizes crept up everywhere. Between 1961 and 1971 the proportion of patients in these areas increased from 17 per cent to 36 per cent and of principals from 14 per cent to 32 per cent.

The medical profession's concern over this changing situation was first evident in 1961 when the General Medical Services Committee (GMSC) debated a motion that extra money should be used to attract more practitioners into the designated areas (BMJ, 1961). In fact the debate ended inconclusively, but it was important in being the first time since 1948 that the possibility was discussed in high circles of supplementing the negative control of the Medical Practices Committee with positive financial incentives. The theme was taken up again in 1963 by the Gillie Committee on the Field of Work of the Family Doctor, which noted that the post-war improvement in the distribution of GPs had apparently stopped and expressed the view that 'more should be done to distribute doctors more evenly throughout the country, not only by the work of the Medical Practices Committee, but by greater financial incentives to

practise in under-doctored areas and by the provision of premises by by local housing authorities in those areas' (Central Health Services Council, 1963). In the following year (1964) the Working Party on General Practice could not escape the conclusion 'that further redistribution is desirable, and that measures must be considered not only to increase the relative attractiveness of the under-doctored areas but also to restrict the further possibility of entry into practice in the most favoured areas' (Working Party, 1964). In the face of such mounting pressure the Medical Practices Committee informed the profession in June 1964 of its proposal to increase the number of restricted and intermediate areas, thereby diverting new applicants away from a greater number of desirable areas (BMJ, 1964a).

This action was not at all to the profession's liking, and the GMSC vigorously reaffirmed its abhorrence of any form of direction and its belief in the selective use of positive financial incentives in areas with large lists and high morbidity rates (BMJ, 1964a). By the end of that year (1964) the principle of financial inducements seems to have been widely accepted and the debate switched to the method of payment - whether it should be a lump sum or recurrent, and whether it should be paid from the pool (BMJ, 1964b). The latter question was effectively resolved in the Charter for the Family Doctor Service, published in March 1965, which, by abolishing the pool entirely, heralded the most fundamental change in methods of remuneration and terms of service of general practitioners since the inception of the NHS (BMJ, 1965a). But the Charter failed to give a clear lead on a policy for designated areas. In a remarkably vague paragraph dealing with the general problem of under-doctored areas (22b) the BMA simply stated: 'it is essential that the government should provide greater inducements in these special areas. We favour such a method rather than any form of direction.' Faced with such a general demand the Ministry could do no more than

comment that 'the Association gives no indication of the form they consider the proposed inducements should take' (BMJ, 1965b).

The local medical committees and the BMA promptly accepted the Ministry's offer to negotiate on the Charter, and agreed also that the new contract of service should be priced by the Review Body on Doctors' and Dentists' Remuneration. The interim reports of the negotiations which followed indicated that both sides were aware of the complexity of the problem of under-doctored areas and were anxious to consider the broadest possible range of solutions. In their first report, for example, the negotiators expressed concern that doctors in these areas should look forward not simply to proper financial rewards but to 'conditions of work which are professionally satisfying both in their own practices and in their relationships with other services' (BMJ, 1965c). But, for whatever reasons, these ideals were eventually abandoned in favour of the simpler (and presumably more feasible) solution of money. The second report of the joint discussions, in October 1965, contained the crucial paragraph which was eventually to form the basis for the new deal (BMJ, 1965d). 'The basic practice allowance for doctors in areas where there is a long-standing shortage of GPs will be increased. This will include all doctors whose main surgery is situated in the defined area, and all patients on such a doctor's list will be counted in determining eligibility. The appropriate areas will be those which have been "designated" by the Medical Practices Committee for a continuous period of three years up to the date of payment. This criterion will be kept under review.' The report stressed the need for continuous improvement in the conditions under which general practice was carried out in these areas, and stated that the payment could therefore be reconsidered in the case of doctors who unreasonably refused an opportunity for such improvement - for example, a move to suitable premises where they could practise as members of a group.

Following the negotiations between the BMA and the Ministry the new contract was priced by the Review Body in its much-heralded seventh report in May 1966 (Review Body, 1966). The additional allowance for practice in designated areas was covered in paragraph 206. The Review Body considered the allowance to be a straight inducement payment which, by virtue of its novelty, could not be fixed precisely. The report acknowledged ignorance of what figure would constitute a realistic inducement, or even of how far a reluctance to practise in these areas could be overcome by financial payments; but members were concerned that the amount should be sufficiently low to prevent a catastrophic loss of earnings when an area ceased to be designated. The figure eventually decided was £400 per annum, payable when an area had been continuously designated by the MPC for a period of three years.

1966-9: dissatisfaction with the designated area allowance

The BMA's reaction to the Review Body report was mostly favourable, although the new allowance was less well received. In the course of a number of meetings of various committees during the summer of 1966 many detailed criticisms were levelled against the new allowance: that payment should not be tied absolutely to a three-year qualifying period; that GPs in under-doctored areas might not want to improve the position since it would hasten the loss of their allowance; that doctors would not be attracted by £400 because areas might well lose their designation as soon as they arrived; and that the criteria for designation should extend beyond that of doctor-patient ratios to include the existence of social and cultural activities, educational facilities, physical characteristics, population density, morbidity patterns, the incidence of chronic occupational disease, and the adequacy of supporting medical services (BMJ, 1966). This latter argument was taken up again by the General Medical Services Committee at meetings early in 1967 when the Committee was considering a complaint from the Glamorgan local medical

committee that whilst the Rhondda Valley was not a designated area, Abingdon in Berkshire was designated (BMJ, 1967a; 1967b). The Welsh representatives argued that such factors as morbidity, educational and cultural facilities, and the number of items of service rendered per £1,000 paid should be taken into account in deciding whether or not an area should be designated. A large list size, they told the Committee, was the least difficulty in filling vacancies in the Rhondda: the real deterrents included excessive workloads, high morbidity, the forbidding nature of the Welsh mining valleys, difficulties in obtaining building sites, and the absence of cultural and other amenities. The long-term solution should be for medical assessors to visit such areas and assess their true circumstances and needs in depth.

By June 1967 the Minister had acknowledged that the problems of chronically designated areas could not adequately be met merely by additional payments; but he did no more than introduce a number of small administrative changes in the regulations governing payment of the allowance (BMJ, 1967c). He may have been hoping that the whole question would be re-examined by the Review Body, and it was with this end in view also that the BMA submitted a further memorandum of evidence, in October, which again reflected the profession's desire to devise a radically new system (British Medical Association, 1967). In this memorandum the Association pointed out that the designated areas allowance was not having the intended effect and that discussions with the Ministry had not substantially changed the criteria for payment. Two interim measures were proposed for the Review Body's consideration pending a full review of the entire scheme: first, that the allowance should be increased and paid over a much longer period; and second, that the rules governing the de-designation of areas should be liberalised to reduce the impact of losing the allowance.

Prior to the publication of the Review Body's next report the GMSC approved a draft Ministry circular to executive councils early in 1968 that 'for the purpose of determining continuing eligibility for additional payments, once an area has been continuously designated for a period of at least three years, a single break in designation occurring subsequently and lasting for not more than 12 months will be ignored' (BMJ, 1968a). The BMA, in the annual report of Council in April 1968, noted this and other small changes with approval, but endorsed the general view of the profession that current rewards were insufficient to improve the manpower situation (BMJ, 1968b). Council was doubtless hoping that the imminent report of the Review Body would, in response to the growing pressures since 1966, substantially increase the amount of the allowance; but this was not to be. When the Review Body did eventually pronounce, in its ninth report in May 1968, it disappointed many expectations (Review Body, 1968). The report re-emphasised the experimental nature of the scheme and re-stated the case for keeping the level of payment low, but it did not alter the amount of the allowance or the rules governing its payment. In fact the only concessions made with respect to under-doctored areas were that the three-year period of qualification should be kept under continuous review, and that the Health Departments and the profession's representatives might take a joint initiative in making arrangements for an increase in the allowance and in submitting any such proposals to the Review Body. It seems, however, that the members were thinking in terms of fairly small increases, for they specifically commented that 'there would be no difficulty in justifying an increase of, say, £100 under the "manpower" criterion of current incomes policy'.

The reaction of the profession was, expectedly, swift and derogatory. At a special conference of representatives of local medical committees in June 1968 the motion was carried that 'this conference is of the opinion that following receipt of the Review Body's report, under-doctored areas

can only look forward to a further deterioration in manpower, and that further additional payments should be sought to attract practitioners to these areas. This should be a realistic inducement to the order of, say, £1,000 per annum .... (BMJ, 1968c). The debate was fierce and bitter, but even by then negotiations were under way with the Ministry on the whole future of the scheme.

1969-76: the search for improvements

The outcome of the negotiations was known in July 1969 when the Health Departments made new proposals for a two-level system of payments to replace the existing flat-rate allowance (BMJ, 1969). It was suggested that the current allowance of £400 should continue to be paid to doctors in designated areas for as long as they remained in the same practice, or until they became entitled to a higher allowance of £500 payable to practitioners in designated areas with average lists in excess of 3,000. The higher rate would be paid when areas had been continuously designated for two years (as opposed to three years for the lower rate), and would continue for a further two years after de-designation. In considering these proposals the General Medical Services Committee again attacked the whole principle of designation and stressed the desirability of channelling extra resources into areas where workloads and morbidity rates were high rather than areas which simply had large average lists. One member suggested that the profession's responsibility lay more in making the public aware of deficiencies in the service than in helping the government with short-sighted plans for relieving the under-doctored areas. But once again the Committee was unable to resolve the conflict between what ideally needed to be done and what was feasible and realistic with existing resources of manpower, money, knowledge and techniques. In the end, therefore, the Committee endorsed the principle of a two-level system of payments, with the reservations that doctors in the same areas should not

receive differential allowances; that there should be a reduction in the interval between the date on which an area became designated and the date on which the allowances became payable; and that payments should continue for a longer period after de-designation. Significantly, the Committee rejected the Health Department's argument that improvements in the organisation of general practice had increased the number of patients who could be cared for without imposing an undue workload on the doctor.

Eventually a 'limited agreement' was reached between the Health Departments and the profession's representatives, and the proposal was put to the Review Body in October 1969 that the designated areas allowance should be paid in two amounts (British Medical Association, 1969; DHSS, 1969). The first, for GPs in designated areas with average lists of between 2,500 and 2,999, would be payable after the area had been designated for three years and would continue for three years after de-designation. The higher allowance would be payable in areas which had been continuously designated for one year with average lists of 3,000 or more, and would continue for two years after the list size fell below this figure, when the lower rate would then be paid in the normal way. There was, however, no agreement between the two sides on the actual size of the allowances. The BMA argued that they should be of the order of £500 and £700 if they were to continue to act as material inducements. The Health Departments, on the other hand, took the view that the allowance had already proved effective and that the need for more doctors in areas where average lists were only a little above 2,500 was less than it had been. They also pointed out the need to prevent a sudden migration of GPs from the areas which, though not actually designated, were nevertheless far from being over-doctored; and they stressed the undesirability of large reductions in income for practitioners who ceased to be eligible. In the light of all these considerations the Departments recommended £400 and £550 as appropriate amounts.

The twelfth report of the Review Body, in June 1970, caused an immediate furore (Review Body, 1970). The report recommended across-the-board increases of 30 per cent for the whole of the medical profession, but the government agreed to pay the full amount only to the training grades, and in the case of other grades to pay half the increase immediately and to refer the remainder to the National Board for Prices and Incomes. The members of the Review Body instantly resigned en bloc. The anger of the BMA exceeded even that of the earlier comparable situation in 1966 (BMJ, 1970a). But the focus of the storm, as the BMA leaders repeatedly stressed, was on the principle of the government's action rather than any substantive contents of the report. This is, for our purposes, a matter of regret, for there is little evidence of the profession's reaction to the substantial increases proposed in the designated areas allowance. The Review Body accepted the principle of a two-level system of payment, but the members must have concluded that even the BMA had under-stated its case, for they finally recommended that 'the upper level of the allowance be fixed at £849 and that the lower level should be increased to £519'. The report argued that the upper level was justified by the very high lists in some areas ('where average lists are 3,000 or more, the average is as high as 3,500'), and the argument that too high a level would cause substantial losses when it ceased to be payable was rebutted on the curious grounds that, as the prospect of de-designation in such areas was remote, 'we need not be seriously concerned about the financial consequences of such withdrawal ... for the doctors involved'.

Events moved swiftly following publication of the report. The remuneration of doctors became an issue in the general election campaign currently under way, and in the election itself a new government was returned to power. In July 1970 the new Secretary of State for Social Services (Sir Keith Joseph) informed the BMA that, in return for full

co-operation by doctors in fulfilling their NHS contracts, the government would withdraw the reference to the Prices and Incomes Board (BMJ, 1970b). However, for 'compelling reasons' only a further 5 per cent increase would be paid to general practitioners (giving them 20 per cent in all), and would stand for one year only. Under the new regulations, a type 1 allowance of £490 was paid from 1 April 1970 under the same conditions that had governed payment of the old allowance; and in addition a new type 2 allowance of £750 was paid to practitioners whose surgeries were in areas continuously designated for one year with average lists of 3,000 or more. The closing scenes of the battle of the twelfth Review Body report came early in September 1970, when it was reported to a meeting of Council of the BMA that 'both the Central Committee for Hospital Medical Services and the General Medical Services Committee had authorised their representatives to agree to the appropriate increase in salary scales and fees and allowances consequent on the government's decision on the twelfth report' (BMJ, 1970c).

A new Review Body was constituted in July 1971 under the chairmanship of Lord Halsbury and reported with remarkable speed in December that year (Review Body, 1971). Broadly speaking, the new Review Body restored the cuts made by the previous government eighteen months earlier, but not wholly in the manner recommended in the twelfth report. Thus although general practitioners received an overall increase of 8 per cent this was achieved through additions to the basic and supplementary practice allowances, the capitation fees and certain other fees and expenses. The designated areas allowances remained untouched. The reason for this, as the Review Body itself explained, was the need for a rapid review for 1971-2 pending a more comprehensive assessment later. In making such an assessment the members expressed their intention not to limit themselves exclusively to periodic evidence submitted to them by the government and the medical/dental associations, but to take account also of relevant

research data from universities and similar institutions as well as the views and comments of a wide range of professional groups, government departments and industries.

The history of the designated areas since 1971 has been summarised in the Introduction. The second report of the Halsbury Review Body, in June 1972, recommended increases ranging from 3 to 254 per cent in all the elements of GP remuneration except the designated areas allowances, and the report quoted the research contained in this thesis as the justification for postponing the recommendation of changes in them. The Joint Working Party between the GMSC and the Health Departments was established in November 1972, and its conclusions may have been reflected in the decision in March 1975 to transfer responsbility for authorising payment of the allowances from the DHSS to the FPCs (DHSS, 1975a), and in the Review Body's recommendation in June of that year to increase the value of the type 1 and 2 allowances to £750 and £1,150 respectively (Review Body, 1975). (These new levels were paid from 1st April 1975.) In December 1975 the Medical Practices Committee extended the upper limit of the intermediate areas from an average list size of 2,000 to one of 2,200, thereby increasing the number of practitioners requiring the special consent of the MPC before recruiting new partners. In its 1976 report, the Review Body again referred to the research in this thesis, commenting particularly upon the ineffectiveness of the designated areas allowance and noting the progress made in the realignment of the practice area boundaries (Review Body, 1976). The continuing interest in 1976 in the distribution of primary medical manpower was further reflected in a general upsurge of concern about the spatial location of health-care resources, and specifically in the Department's Consultative Document on priorities for health and personal social services (DHSS, 1976). The statement in the Document about the impending discussions with the representatives of the family doctors over the future recruitment and

distribution of GPs suggests that the themes of this thesis will continue to be of relevance in the development of policy, at least in the immediate future.

Table 2.1 Distribution of unrestricted principals, and average list sizes, by type of practice area, 1952-74 (England and Wales)

(Source: Annual Reports, Ministry of Health/DHSS, 1952-70; DHSS and Welsh Office Health and Personal Social Services Statistics, 1971-74)

Year	Percentage of principals in each area			Average list size in each area			Total
	Designated	Open/inter-mediate	Res-tricted	Designated	Open/inter-mediate	Res-tricted	
1952	44.0	49.2	6.8	2,851	2,184	1,581	2,436
1953	33.2	60.1	6.7	2,726	2,183	1,594	2,324
1954	22.8	69.5	7.7	2,741	2,228	1,546	2,293
1955	19.5	73.7	6.8	2,736	2,229	1,554	2,283
1956	18.2	74.7	7.1	2,711	2,234	1,548	2,272
1957	16.6	75.9	7.5	2,659	2,264	1,517	2,273
1958	15.7	77.1	7.2	2,627	2,247	1,594	2,267
1959	16.6	75.9	7.5	2,745	2,251	1,575	2,282
1960	16.8	75.5	7.7	2,723	2,257	1,603	2,287
1961	14.3	79.0	6.7	2,742	2,272	1,563	2,292
1962	14.7	76.7	8.6	2,744	2,297	1,608	2,304
1963	16.2	75.0	8.8	2,748	2,313	1,652	2,326
1964	17.9	70.7	11.4	2,768	2,359	1,747	2,362
1965	21.1	67.5	11.4	2,826	2,393	1,758	2,412
1966	25.6	63.4	11.0	2,845	2,407	1,807	2,453
1967	29.4	59.5	11.1	2,840	2,410	1,837	2,472
1968	33.3	56.5	10.2	2,819	2,395	1,811	2,477
1969	32.3	57.3	10.4	2,817	2,401	1,865	2,479
1970	31.8	56.7	11.5	2,791	2,391	1,884	2,460
1971	30.1	58.4	11.5	2,781	2,380	1,896	2,444
1972	24.5	62.5	13.0	2,770	2,366	1,920	2,406
1973	20.0	67.7	12.3	2,753	2,361	1,933	2,387
1974	17.7	70.2	12.1	2,743	2,353	1,939	2,372

CHAPTER THREE

CONTROLS AND INCENTIVES

The administrative structure

The machinery designed to redress the geographical imbalance in the provision of general medical services was set up under the 1946 National Health Service Act, which provided for a central body with certain powers of control over the location of family doctors, a local executive network to administer the family practitioner services, local professional representation, and the passage of relevant information from the local network to the central body about manpower needs. These provisions were subsequently augmented by certain financial allowances, notably the initial practices and designated areas allowances. The 1973 National Health Service (Reorganisation) Act did little to alter the formal structure, but by creating new opportunities for the integrated planning and administration of services it carried direct implications for the processes by which GP manpower policies are formulated.

The central body established by the 1946 National Health Service Act is the Medical Practices Committee. Section 34(2) of the Act states:

> 'With a view to securing that the number of medical practitioners undertaking to provide general medical services in the area of different Executive Councils or in different parts of those areas is adequate, the Minister shall constitute a committee to be called the Medical Practices Committee for the purpose of considering and determining applications.'

The Committee comprises a chairman 'who shall be a medical practitioner', and eight other members, six of whom are medical practitioners. Five of the six must be 'persons actively engaged in medical practice'. The chairman and members are appointed by the DHSS in consultation with representatives of the medical profession. The secretary and staff are provided by the Department, usually civil servants seconded for a number of years.

The requirement for executive councils to consult with the Medical Practices Committee and the local medical committees was also written into the 1946 Act. The executive councils themselves were established under Section 31, which required one council to be set up for each local health authority. (It is of some interest that the Act failed to allow for subsequent changes in local government areas by requiring executive councils to adjust their boundaries accordingly. Consequently, councils such as Middlesex and Kent, which included London boroughs, survived unchanged following the creation of the Greater London Council.) Executive councils were replaced under the 1973 Act by family practitioner committees with similar functions and with boundaries corresponding to the new local authority county council and metropolitan districts. These new committees are, however, sub-committees of the area health authorities and the fear has been expressed by clerks of the old ECs that much of their significance in planning functions may be eroded in the new system.

Local medical committees (LMCs) are elected by general practitioners, until 1974 within each executive council area but since April of that year within each area health authority. Larger areas are normally subdivided into local constituencies. Nominally, the function of the LMCs is a consultative one: section 34(3) of the 1946 Act requires executive councils (family practitioner committees) to consult with local medical committees on such matters as the appointment of doctors to single-handed practices. In reality the influence of an LMC over such matters as the determination of practice area boundaries may be greater than that of the family practitioner committee, for it is rare for the Medical Practices Committee to enforce boundary changes against the wishes of a local medical committee. The role of the local medical committee is therefore of some importance in counter-balancing the centralised perspectives of the MPC. Decisions which from the national viewpoint, may seem rational and desirable could fail to be implemented unless the benefits are perceived locally. An obvious

example of this in recent years has been the failure to divide large county boroughs into smaller medical practice areas where such division might involve the eventual loss of the designated area allowance for many doctors.

The 1946 Act required executive councils to supply such information as may be necessary for the Medical Practices Committee to fulfil its functions.

> 'Regulations shall make provision ... for requiring Executive Councils to make reports, at such times and in such manner as may be prescribed, to the Medical Practices Committee as to the number of medical practitioners required to meet the reasonable needs of their area and the different parts thereof and as to the need for filling such vacancies.' (Section 34 (8)).

The Medical Practices Committee set about its task in 1948 by requesting information from ECs about any 'manifestly under-doctored districts in their area' (Medical Practices Committee, 1948a). The information requested included the population of each district, the number of patients on each doctor's list, the important topographical features of the district, and the estimated number of additional doctors required. Towards the end of that year (1948) the Committee again wrote to executive councils requesting information for all districts, the districts being defined 'having regard to the practices of doctors and the centres from which they practise' (Medical Practices Committee, 1948b). The requisite information included the size and distribution of the population, the number of doctors and assistants together with personal and professional details about them and their practices, special factors such as seasonal population increases which might affect the demand for care, and any 'special difficulties of an area - its communications, etc.'

By the following year (November 1949) the Medical Practices Committee, whilst stressing its intention that the EC reports should in no way be standardised, had nevertheless decided upon 'certain minimum information

which it requests councils to submit' (Medical Practices Committee, 1949a). Much of it was statistical, concerning the size of the population, the number of doctors and certain characteristics of their practices, but the opportunity was given for councils to offer more immpressionistic comment. 'In any case where the population is not evenly distributed for geographical or other reasons, it is suggested that a brief description of the area .... should be given. Moreover, any information as to inadequacy of the service in any respect in an area including special inconvenience to patients or doctors should be brought to our notice.' Commenting upon this, the MPC remarked in an appendix to its first annual report:

> 'The Act and Regulations clearly lay upon this Committee the duty of deciding whether or not in an area or part of an area there is an adequate number of doctors ... In arriving at its decision the Committee pays due regard to all information provided by an Executive Council. Indeed it relies almost exclusively upon such information. The opinion of an EC also is regarded of the highest importance by the Committee.' (Medical Practices Committee, 1949b).

In subsequent years the convention has developed whereby executive councils submit detailed information to the MPC every three years, supplemented by summary reports in the interim years. Both sets of returns show, for each practice area, the number of principals; the number of full-time assistants; the total number of patients; the average number of patients per principal; the number of units of rural practice payments; the number of dispensing patients, temporary residents and elderly patients; the cost of maternity medical service payments; and the number of hours per week spent by doctors on hospital or other commitments where provided. Some of this information has been utilised in the descriptive analysis of practice areas in the next chapter.

Medical Practice Areas: origins and change

An early use made of the information supplied by executive councils

was in the identification and classification of medical practice areas. The origins of these areas are obscure. The request from the Medical Practices Committee in July 1948 for information from executive councils about 'any manifestly under-doctored districts' implies that some informal subdivisions of ECs may have existed prior to 1948. There appears,however, to be no formal record of these districts and the need for them would not arise within the context of manpower distribution because the government had no responsibility for this prior to the passage of the 1946 Act. The MPC therefore accepted the delineation of district boundaries proposed by the executive councils, and published its first survey of districts as Appendix III to its first report in June 1949 (Medical Practices Committee, 1949b).

By the following November the Committee had decided not only to call for certain minimum standardised information from the executive councils but also to specify criteria for sub-dividing large areas.

> 'Usually it will not be necessary to sub-divide a compact urban area of less than 100,000 population, and even larger "hundred doctor" areas may be presented as a single area. In larger urban areas, especially the cities, Councils will consider that sub-division may be desirable as practice conditions vary considerably in different parts of such. The overlap of practices makes any precise splitting up of the area impracticable and therefore a broad classification by Postal Districts, Police Divisions, Parliamentary Divisions, etc. or combination of such, or whatever method may seem best to the Council must suffice. It is important, however, that such sub-divisions should not be too circumscribed, but should be large enough to present a broad picture of the position. Maps are often helpful in a proper understanding of the area. County areas, of course, require other treatment; sub-divisions by local authority areas or combinations of these are generally most useful. Here again, however, a broad picture should be presented whenever possible. On the other hand "single practice areas" in rural districts should be presented in detail for individual consideration.' (Medical Practices Committee, 1949a).

This scarcely constitutes an explicit statement of guidelines in fixing practice area boundaries; but at this time the Committee was still particularly sensitive to criticisms from the profession. The directive

left almost unlimited discretion in the hands of executive councils and it is hardly surprising that the areas thus defined varied so much in size and composition.

Boundaries can in 'principle be changed according to the wishes of the Medical Practices Committee; in reality, however, the Committee rarely imposes its decisions without the full consent of the family practitioner committee concerned, which in turn will have consulted the appropriate local medical committee. The changes made in recent years have mainly concerned the amalgamation of smaller practice areas (hence the trend noted in the next chapter towards a reduction in the total number of areas). The more important changes, especially the sub-division of large boroughs into smaller practice areas, have been much rarer. In one recent such case the Committee's attempts to divide the borough succeeded only when its classification changed from designated to open, and division was then the only way of preserving the designated areas allowance for those doctors with large lists in the undermanned sectors.

The initiative on boundary changes usually originates from the Medical Practices Committee but may come from family practitioner committees, local medical committees or even individual doctors if they feel unreasonably overworked. There is no set machinery for initiating change. Proposals may arise locally where it is evident that changing circumstances render old boundaries inappropriate. A new motorway through the middle of an area may make access difficult; the closure of a railway line may enable the amalgamation of areas; the development of a new town or even a small housing estate may make it expedient to isolate the area until it is developed and provided with appropriate medical care. Local medical committees may request a change in boundaries when they consider such changes will operate to their advantage. In these cases the MPC would solicit the views of the family practitioner committee, for it is that committee which the MPC has a statutory obligation to consult. Informal

contacts may exist between the MPC chairman and the chairmen or secretaries of local medical committees, but formal communication is through the FPCs.

Just as the origins of the practice areas are somewhat obscure, so too are the origins of the system of classifying areas. Following the first submission of information by executive councils in 1948, the Medical Practices Committee was able to classify the districts as 'needy', 'open, 'doubtful' or 'closed', although no standard criteria were used to distinguish them. More order was imposed in the next four years when the classifications were revised on the basis of further data supplied by ECs. A major change took place in 1952 following the Danckwerts award, when the Committee was asked to specify clear criteria for the classification of districts (or medical practice areas as they were now called). Under the new system, areas with average lists in excess of 2,500 were classified as 'designated' and doctors wishing to set up practices in such places were strongly encouraged; areas with average lists between 1,500 and 2,500 were called 'intermediate'; and areas with average lists below 1,500 were classified as 'restricted' and normally closed to new entrants, even as replacements for outgoing practitioners.

The basis for the classification of practice areas has been revised several times since 1952, most recently in 1975, but areas have normally been designated when the overspill of patients above an average of 2,500 per doctor has exceeded 2,500 (which is the point at which one incoming doctor can supposedly set up a viable new practice). The deliberations of the Medical Practices Committee over the classification of areas are secret, but the impression is gained from official reports and from data on the range of list sizes within areas (see page 103) that other relevant factors about an area in addition to average list size may often be taken into account, at least when the classification is borderline. As a rule,

however, the Committee in England and Wales is somewhat less inclined than its Scottish counterpart to take account of quantitative data in addition to list size. In deciding whether or not to designate a district, the Scottish MPC (an entirely separate body) considers many factors which vary from district to district, including the number of maternity cases dealt with, the number of temporary residents treated, the size of partnerships, and the amount of work spent on time other than general practice (Scottish Medical Practices Committee, 1969).

The reasons for the original choice of an average list size of 2,500 (in conjunction with the overspill rule) as the basic criterion of designation are unclear. It seems to have been accepted by the profession in 1952 as a reasonable guide to the maximum number of patients for whom a doctor could properly care, and was rapidly enshrined as part of the folk-lore of general practice. It has, however, been questioned whether it remains a valid indicator and whether it should be applied uniformly to all areas regardless of their size, population density, or demographic and epidemiological characteristics. The Medical Practices Committee has periodically reviewed the usefulness of this definition of a designated area, especially when the national average list size has approached 2,500, but no proposals for change have been made to the General Medical Services Committee or the Health Departments. The widely expressed desire to substitute or augment list size by other criteria (such as workload, population structure, morbidity patterns, etc.) has failed to overcome the practical problems of obtaining consensus over relevant criteria and measuring and monitoring them in the practice areas. The proposal to vary the average list size required to designate an area also encounters the problem that the designated areas are used not merely for the purpose of negative control but also as the basis for two important allowances - the initial practice and designated area allowances. A criterion that began as no more than a rough guideline to enable the MPC to identify areas with a severe shortage of doctors has now become so closely identified with the payment of money that much of

the flexibility has left the system. Suddenly, the definition of a designated area or the precise location of an area boundary becomes important, and therefore difficult to change, even though it may have been based originally upon little more than guesswork or expediency. As the recent history of the practice areas shows, their use in regulating a component of remuneration has created problems of rigidity in the determination of area boundaries, inflexibility in the definition of an under-doctored area, and lack of comparability in relating practice areas to other territorial units in the administration of health and welfare services.

Negative control

The 1946 Act established the right of the Medical Practices Committee to refuse the admission of practitioners in over-doctored areas and the duty to admit doctors in areas specified by them.

> 'The Medical Practices Committee may refuse any such application on the ground that the number of medical practitioners .... is already adequate, and, if in the opinion of the Committee additional practitioners are required for any area or part but the number of persons who have made applications exceeds the number required, the Committee shall select the persons whose applications are to be granted and shall refuse other applications.
>
> Before selecting any persons .... the Medical Practices Committee shall consult the Executive Council concerned, and that Council shall, if a Local Medical Committee has been formed ..... consult that Committee before expressing their views on the persons to be selected.' (Section 34(3)).

The entry of doctors into general practice may take one of several forms. In the case of the death or resignation of a practitioner, the family practitioner committee must immediately report to the MPC on the need for filling the vacancy. The FPC may consider that a successor is not needed and the report may recommend that the practice should be dispersed (in the case of a single-handed practice) or that the remaining partners should succeed to it (in the case of partnerships). If, however,

the FPC feels that the vacancy should be filled, a successor is appointed either by the existing partners or, in the case of a single-handed practice, by the Medical Practices Committee after consulting with the family practitioner committee and the local medical committee. The MPC retains control over the admission of new partners in restricted and intermediate areas, but provided the proposed partner is fully registered the Committee would never influence existing partners in their choice of a new colleague.

Another type of entry into general practice is created when a family practitioner committee, in consultation with the local medical committee, considers that another doctor is needed in the area. The procedure for giving public notice of the vacancy and for the selection of candidates is the same as that for the replacement of single-handed practitioners, with the MPC making the final selection. In addition, a doctor may himself apply for admission to the medical list of a family practitioner committee, and in such cases the committee, again in consultation with the LMC, will consider the application and recommend to the MPC whether it should be allowed. The Committee is not bound to accept the FPC's recommendation, but the only statutory ground for refusing is that the area is already classified as intermediate or restricted.

A third route into general practice is through an assistantship. No direct control is exerted by the Medical Practices Committee in these cases, for a principal who wishes to employ an assistant for more than three months merely requires the approval of his family practitioner committee. He may subsequently appeal to the MPC if his request is refused, but the appeal procedure is rarely used. The salaries of assistants are paid directly by the principals who employ them, and an allowance of £1,075 (or £1,500 if accompanied by a designated areas allowance) is currently made to principals employing full-time assistants. Few doctors are now

prepared to accept assistantships because of the ease with which ordinary and salaried partnerships can usually be obtained, and few of those who do accept such posts remain in them for long; but the geographical distribution of assistants still has a double significance. In the short term, assistants provide an extra pair of hands and ease the workload of principals. In the longer term, assistants rapidly become principals, and the encouragement to assistants to locate in under-serviced areas may increase the probability of their accepting principalships in those areas.

The effectiveness of the powers of negative control exercised by the Medical Practices Committee is difficult to judge, for the deliberations of the Committee are secret and there is no certain knowledge of the basis on which decisions are made regarding the admission of individual practitioners into particular areas. Some tentative conclusions may nevertheless be drawn from published information about the outcome of those decisions, particularly the distribution of annual net admissions of unrestricted principals by practice areas, and the number of applications for admission to the medical list that are refused by the Committee. Data on the distribution of net admissions are set out in table 3.1. They are based on unpublished statistics collated quarterly by the DHSS, and show the net effect of all admissions, readmissions and withdrawals of unrestricted principals in England by area classification. In the case of admissions, the classification of the area is that recorded at the time of admission; in the case of withdrawals, it is the latest known to the DHSS, usually the previous October. The figures show that, in each of the years 1970-3,about four-fifths of net admissions were to designated and open areas in England, and no more than a tenth of admissions (except in 1970) were to restricted areas. The proportion of admissions to intermediate areas has been rising during this period.

At their face value, these figures suggest that the policy of negative

control is operating quite well, but two modifying comments must be made. First, the data relate to net admissions only (the gross figures are not available), and they therefore conceal the number of replacement admissions in restricted areas. The MPC's control over replacement admissions to these areas (estimated to be between 80 and 100 each year), would mean that each replacement was considered (and presumably justified) on its merits, yet the evidence in chapter 1 about the process of redistribution occurring more through entries to and exits from the profession than through geographical mobility would suggest that it is precisely by the refusal to sanction replacement entries in restricted and intermediate areas that redistribution is most likely to occur. The failure to replace departing practitioners in these areas would inevitably result in an increase in their average list sizes, but this is a necessary consequence of redistribution, however it is achieved. The second modifying comment is that the results contained in table 3.1 have been achieved with apparently little active control by the Medical Practices Committee. In 1970 the Committee refused only 18 of a total of 1,353 applications for admission to medical lists; in 1971, 15 refusals were made from a total of 1,347 applications; in 1972, 31 refusals were made from a total of 1,444 applications (Medical Practices Committee, 1970; 1972). In summary, therefore, the recent trends indicate that although the <u>additional</u> doctors entering general practice each year are locating mainly in the designated and open areas, most of those leaving their practices in the restricted and intermediate areas are being replaced, and the Medical Practices Committee is called upon infrequently to exercise its powers in refusing to allow applications for admission to medical lists.

The situation of assistants is rather different, for the MPC has no direct jurisdiction over their employment and rarely even hears appeals against the decisions of family practitioner committees. (Only three such appeals were heard in 1972). Yet on both of the grounds for judging the distribution of assistants to be important (page 86), the actual distribution

is unsatisfactory. In general, regions and counties with the greatest shortages of family doctors (particularly in the East and West Midlands and the Northern region) have the fewest assistants, whilst regions with the most assistants (notably the South-East) are also well supplied with principals (DHSS, 1970). As with admissions to the medical lists, there is no certain knowledge of the grounds on which family practitioner committees decide either to accept or reject an application to employ an assistant. It is not even known whether any serious attempt is made to control the number of assistants going into restricted or intermediate areas. In the absence of such knowledge it would be unwise to place too much emphasis on the possible benefits resulting from an extension of the MPC's control to the location of assistants; but the evidence at least gives rise to the question of whether decisions about the employment of assistants take sufficient account of national requirements.

Financial incentives

The most important financial incentive to stimulate GPs into moving to particular localities is the designated areas allowance. The allowance, as noted in chapter 2, developed out of the Family Doctor Charter in 1965, was priced at £400 by the Review Body in May 1966, and was first paid from October that year, albeit at a reduced rate of £200 per annum for the first six months. In April 1970 the new graduated payments of £490 and £750 (types 1 and 2) were introduced, and these were further increased to £750 and £1,150 respectively with effect from April 1975.

A doctor qualifies for the allowance if he is eligible for a basic practice allowance, and if he practises from a main surgery in an area that has been continuously designated for at least three years (or one year in the case of the higher - type 2 - allowance). Special regulations introduced since 1966 enable the allowance to be paid in full to a doctor

whose main surgery is outside a designated area but who has at least 80 per cent of his patients living within such an area, and the allowance is scaled down pro rata to a minimum of 60 per cent. The payment continues for a concessionary period of three years after an area ceases to be designated (two years in case of a type 2 allowance, after which doctors may continue to be eligible for the lower rate), and once an area has qualified for the payment, a single break in the relevant form of designation for a period of not more than 12 months will be disregarded for the purposes of continuing eligibility. As a result of these rather complex conditions of payment it is possible for GPs in some designated areas to be ineligible for the allowance and, conversely, for doctors in some non-designated areas to be in receipt of it (i.e. during the concessionary period following de-designation). These anomalies, to which we return later, are important elements in the effectiveness of the allowance, for they mean that a doctor moving into a designated area during the qualifying period can never be sure of receiving the allowance, and even if he does, he is at risk of losing it within a few years if the area reverts to an open classification. Moreover, established doctors in a designated area have an obvious incentive in trying to maintain its designated status by keeping newcomers out.

In addition to the designated areas allowance, a further financial inducement exists for doctors to move to designated areas in the form of the initial practice allowances, payable whether or not the area also attracts the designated areas allowance. Four types of initial practice allowances are paid. Type A is available to doctors setting up a new practice or filling a vacancy in small singlehanded practices; type B is available only for the setting up of new practices in areas where average lists exceed 3,000; type C is available to doctors joining as extra members of existing partnerships whose average list before their arrival was at least 3,000, and all of whose members qualify for a full basic allowance; and type D is paid only in specific areas, selected by the Department of

Health and the Medical Practices Committee, in which rapid development is expected with a considerable influx of population

The basic purpose of these allowances it to provide an income 'cushion' (for a period of between two and four years, depending upon the type of allowance) for doctors establishing themselves in a designated area, but although the amount of the allowance varies in a complex way from type to type, all except type D are based upon a 'reckonable income' of at most £5,000 per annum. The probable effect of the intial practice allowances on the distribution of family practitioners is quite small, not only because few doctors actually receive an IPA, but also because, as the BMA pointed out in its evidence to the Review Body in 1969, the 'reckonable income' in types A and B is so far below the average income (net of expenses) of general practitioners in the NHS as to constitute a considerabl risk to doctors taking them up (British Medical Association, 1969). The only evidence to hand of the value of the initial practice allowances is contained in a survey conducted by the Health Departments, indicating the effectiveness of the type A allowance in establishing doctors in single-handed practice in designated areas (Review Body, 1970).

The costs and coverage of the designated areas and initial practice allowances are set out in table 3.2. In October 1970, 4,985 doctors were receiving either type 1 or type 2 of the designated areas allowance (the DHSS figures do not distinguish the two allowances for that year). By 1972 the number had increased to 6,257 (a rise of 25 per cent), even though at that time there were only 5,099 principals actually in designated areas. At that date (October 1972) 32 per cent of all unrestricted principals in England were in receipt of a designated areas allowance. The type 1 allowance accounts for by far the larger proportion of payments: more than nine out of every ten doctors receiving an allowance had the type 1. The number of doctors receiving an initial practice allowance is very much

smaller, although the percentage increase between 1970 and 1972 (17 per cent) is similar to that for the designated areas allowance.

The costs of the two allowances are also shown in table 3.2. Between 1968-9 and 1971-2 expenditure on the designated areas allowances rose from £1.4m. to £3.4m. By March 1972 the annual expenditure was averaging about £548 per doctor receiving an allowance. The total cost of the initial practice allowances is less than a tenth of the designated area allowance, but it too has risen between 1968-9 and 1971-2, by £124,000 (81 per cent).

Table 3.1 Net admissions of unrestricted principals, by type of practice area, 1970-73 (England)

(Source: unpublished statistical tables, DHSS; corrections to 1973 data from MPC, British Medical Journal, (1976) 1, 45)

Type of practice area	Net admissions, by year			
	1970	1971	1972	1973
Designated	+138 (70)	+109 (40)	+120 (30)	+93 (42)
Open	+24 (12)	+126 (46)	+172 (43)	+85 (38)
Intermediate	+ 9 (4)	+32 (12)	+77 (19)	+45 (20)
Restricted	+27 (14)	+ 8 (3)	+32 (8)	- 1 (-)
Total	+198 (100)	+275 (100)	+401 (100)	+222 (100)

Note: The table gives the net change after deducting withdrawals from the sum of first admissions and re-admissions. In the case of an admission the classification of the practice area is that at the time of admission; in the case of a withdrawal the classification of the practice area is that at the previous 1st October or date of admission whichever was the later.

Percentages calculated down columns, and included in brackets.

Table 3.2 Unrestricted principals in receipt of designated areas and initial practice allowances 1970-72, and costs 1968/9-1971/2 (England)

(Source: DHSS tabulations, HC270, May 1973)

Allowance	Number of principals in receipt of allowance (October)		
	1970	1971	1972
Designated areas allowance:			
type 1	)	5,598	5,802
	) 4,985		
type 2	)	429	455
change on previous year		+21%	+4%
Initial practice allowances:			
all types	191	192	225
change on previous year		-	+17%

	Cost of allowance (£000), fiscal year ending March 31			
	1968-9	1969-70	1970-1	1971-2
Designated areas allowance	1,435	1,800	2,552	3,365
change on previous year		+24%	+43%	+32%
Initial practice allowances	154	216	274	279
change on previous year		+40%	+27%	+2%

CHAPTER FOUR

THE MEDICAL PRACTICE AREAS: A DESCRIPTIVE ANALYSIS

The importance of describing and justifying the area units that are used in the definition of spatial distribution has been stressed at several points in this thesis. In England, much of the routine data on the location of family doctors are arranged according to family practitioner committee areas and standard regions; these data are presented in the next chapter. In addition, however, ad hoc area units (medical practice areas) have been created for the purposes of identifying and controlling the distribution of GPs at a local (sub-FPC) level, and much of the national consciousness about the 'problem of maldistribution' reflects the arrangement and presentation of data in terms of these units. It was shown in chapter 2, for example, that the increase in the first half of the 1960s in the number of designated areas, and in the proportions of patients and doctors within them, was widely interpreted as evidence of a worsening distribution of manpower, and this interpretation became a factor in the introduction of the designated areas allowance. Yet the medical practice areas and the official statistics associated with them possess strange properties that may give rise to illusions for the unwary. They do not reflect any standardised criteria for the delineation of their boundaries; they vary considerably in size; and their classifications may change on a quarterly basis with the movement both of doctors and of population. The object of this chapter is thus to set out some contemporary descriptive data about the medical practice areas, and to discuss some of the problems involved in their use as an area unit.

Sources of data

The data presented in this chapter are drawn from three sources. The most important source is a survey made in 1974 of the reports submitted by the former executive councils to the Medical Practices Committee. Councils were expected to submit detailed surveys of the manpower situation

within their areas every three years and to supplement these in the intervening years by shorter annual reports. The triennial survey reports happen to include summaries for each medical practice area arranged in a comparable form to that of the shorter annual reports, thereby making it possible to collect certain standardised information for all practice areas within a twelve month period. With the permission of the Medical Practices Committee, access was gained to the non-confidential parts of the executive councils' returns and information relevant to the study was extracted. This source is referred to throughout the chapter as 'the MPC survey'.

The second source, used for some the tabulations in this chapter, is the list of practice areas and their classifications produced annually (and updated quarterly) by the Medical Practices Committee. This source is referred to as 'the MPC lists'.

The third source of information is the statistics compiled by the Department of Health and Social Security from the EC returns about manpower trends in the general medical services. Some of these statistics have been published either in the Annual Reports of the Department (up to 1971) or in the annual Health and Personal Social Services Statistics since that date; others are unpublished but have been made available by the Department. This third source is referred to throughout as 'the DHSS tabulations'.

The time period covered by the material in this chapter differed somewhat from source to source. In the case of the MPC survey, the object was to gather reports for each executive council submitted during the year ending April 30th, 1973. (In order to avoid a deluge of reports arriving at the same time, the MPC asked executive councils to submit their reports at quarterly intervals throughout the year). This objective was almost achieved, for 97 per cent of all practice areas were included in reports

submitted to the MPC between July 1972 and April 1973, the remaining 3 per cent of areas (all located in Cumberland, Westmorland and Walsall) being covered in reports submitted prior to July 1972. In all, data relating to 31 per cent of practice areas came from reports submitted in July 1972, 26 per cent from reports on October 1972, 22 per cent from reports in January 1973 and 18 per cent from reports submitted in April 1973. The median date to the nearest month was September 1972.

The second source of information (the MPC listing of practice areas) relates to the first of January each year, the most recent year used in this chapter being 1973. The number of areas included in the MPC list differs very slightly from the number produced by the MPC survey, the reason lying partly in the differing time periods covered by the two sources and partly in the exclusion from the MPC survey of areas containing no principals. (Areas with no doctors were very few in number but were excluded because of the desire to avoid zero values in the calculation of average list sizes.)

The third source of information (the DHSS tabulations) relates to the first of October each year. This means that the tabulations from this source (relating to 1st October 1972) were one month later than the median date of the MPC survey. The Department's tabulations normally cover England and Wales up to 1969 but England only since that date.

Definitions

As with dates, there was a lack of exact comparability between the three sources in the definition of certain items. We deal here with the definition of unrestricted principals, patients, and average list size.

Executive councils were instructed to include in their returns to the MPC all unrestricted principals for whom the majority of their patients were registered with the council. Those in partnerships or in single-handed

practices with lists of 700 patients or more were always included, but single-handed doctors with lists of less than 700 were included only if their practices were building up or if they worked in isolated rural areas. A full-time equivalent statistic is derived for principals receiving less than the full basic practice allowance (i.e. with less than 1,000 patients). Assistants were entered only if they were full time.

The numbers of patients submitted to the MPC were those registered with the unrestricted principals in main practices. Place of residence is disregarded, as it is also when calculating unadjusted average list size. However, patients resident within an EC area but registered with doctors outside were entered under 'fringe practices' as well as being counted among the patient population of the area in which they were registered. There is no element of double-counting here because the doctors and patients in fringe areas were always clearly distinguished in the EC returns. The numbers of patients suffer a degree of inflation because of delays in transferring the records of patients who change doctors or in notifying deaths and emigration. For the purpose of this chapter, the number of patients are taken simply as the unadjusted totals submitted by ECs as being 'patients of principals in main practices'.

The average list size used in analysing the MPC survey data is the same as that employed by executive councils in their returns to the Committee. It is calculated by dividing the number of patients (as defined above) by the number of full-time equivalent principals and assistants. The full-time equivalent is derived by a pro rata adjustment for principals with lists of less than 1,000 patients and by counting two full-time assistants as the equivalent of one full-time principal. In fact, the number of full-time assistants recorded in the MPC survey was quite small: 71 in designated areas, 79 in open areas, 59 in intermediate areas, 31 in restricted areas; this means that in most areas the technique of counting two assistants as one

equivalent principal has a nil or minimal effect upon average list size. Nevertheless, it should be noted that this method of calculating average list size is not strictly comparable to that used in the DHSS tabulations, where the average is taken simply as the mean number of patients per unrestricted principal. Nor can the classification of a practice area be deduced solely from the average list size submitted by executive councils. In the case of designated areas, for example, the overspill rule states that an area cannot be thus classified until the excess of patients above an average of 2,500 is itself 2,500, and in all areas the MPC may take other factors into account in deciding the appropriate classifications. In addition, some adjustment is invariably made for the inflation factor. This is done by deflating the average list size in each EC by the percentage by which the patient numbers exceeds the national average inflation. This 'excess' inflation, which varied between ECs in 1972/73 from 1 per cent to nearly 16 per cent, is based on population estimates and is applied uniformly to all practice areas within each executive council.

Comparability of statistics

The reports submitted by executive councils to the MPC are intended primarily to serve administrative rather than statistical ends. Although the Committee provides guidelines on definitions, it is not to be expected that the reports would be as precise as the statistical returns made to the DHSS, or that tabulations derived from the two sources would be identical. In fact, the total number of principals listed in the MPC survey proved to be very close indeed to the number contained in the DHSS tabulations (table 4.1). The net difference between the two sources was a mere 16 doctors out of a total of almost 20,000, and although the gross differences were somewhat greater within each class of area, the percentage distribution between the different classes was identical (to the nearest whole number) in the MPC survey and the DHSS tabulations. The small

variations seem reasonably to be explained in terms of differences between the two sources in the definitions used and the time period covered. The fact that the MPC survey data relate, in effect, to five different points in time creates an obvious risk of double-counting of principals who moved from one EC to another during the year.

There was a much larger discrepancy between the MPC survey and the DHSS tabulations in the number of assistants. As mentioned above, the MPC survey identified a total of 240 full-time assistants compared with 567 assistants recorded in the DHSS tabulations for October 1972. The source of the discrepancy is not clear, but it may lie in the inclusion in the DHSS tabulations of all assistants in contrast to the MPC's practice of recording only full-time assistants in the summaries. The number of patients appearing in the MPC survey was, in total, about 1 million (2 per cent) larger than in the DHSS tabulations (table 4.1). Unlike the distribution of principals, the MPC survey recorded the larger number of patients within each class of practice area as well as in total. In designated areas the excess was 1.4 per cent, in open areas 1.7 per cent, in intermediate areas 3.5 per cent and in restricted areas 4.3 per cent. The differences between the MPC and the DHSS statistics may partly be explained by the time differences as well as by inflation. The DHSS figure is itself higher than the estimated home population, a further reflection of the inflation occurring in patient registers.

The number and location of medical practice areas

The classification of practice areas at 1st January, 1966-70 is given in table 4.2. The table illustrates the steady decline in the total number of practice areas (of about 15 per cent) between 1966 and 1973 due to amalgamations. The designated areas increased slightly as a proportion of the total from 1966 to 1969, remained constant at 20 per cent for a further two years, and have since declined both absolutely and as a

proportion. The restricted areas, by contrast, display a contrary trend: they decreased somewhat as a proportion of the total until 1969, since when they have increased to the stable figure of 36 per cent. Intermediate areas have increased steadily, in both absolute and relative terms, in almost each year between 1966 and 1973; open areas have declined, also in absolute and relative terms, but at a somewhat faster rate.

The Medical Practices Committee survey yielded data for 1,459 practice areas in England in 1972-3. (This figure, for reasons outlined above, differs slightly from the total of 1,466 areas recorded in the MPC lists for 1973.) The distribution of these areas within the standard regions of the country and within the former counties and county boroughs is shown in table 4.3. The regions differed considerably in their distribution of practice areas in 1972-73. In the North West three-quarters of the practice areas were designated or open and fewer than one in ten was restricted. In three regions (Yorkshire/Humberside, East Midlands, West Midlands) about half the areas were designated or open, but the mixed characters of these regions is shown in the fact that at least a quarter of the areas were restricted (one-third in the case of the East Midlands). In the North and the South-East about two-fifths of practice areas were designated or open; the North also had a high proportion of restricted areas (45 per cent). The remaining two regions (East Anglia and the South-West) have always had low average lists, and this is reflected in the table in the low proportions of designated and open areas and the high proportion of restricted areas (as many as two-thirds in the South-West). Expressing the percentages the other way, more than two-thirds of all designated areas in the country (68 per cent) were situated in the North West, Yorkshire/Humberside and the East and West Midlands. The lower half of table 4.3 shows that the former county boroughs contained proportionately more designated areas in 1972-3 than the counties and Greater London, and only 2 per cent of all practice areas in the boroughs were restricted. These results broadly fit the

conventional view of the location of under-doctored areas as a problem mainly of the conurbations in the North and the Midlands, but a more detailed exploration of the geographical pattern must await the next chapter.

The size of practice areas

The size of a practice area may be classified in terms of, inter alia, its acreage, population or number of practitioners. The latter two would yield comparable results between areas if the ratio between population and practitioners were the same in each area, but given the substantial range in list sizes which actually exists, a choice must be made between the two. For the purposes of this section, the number of doctors practising in an area has been chosen as the indicator of its size, partly because this accords with the traditional way of thinking about size and partly because the number of patients, if that were chosen, would be the number registered in the area, not living there.

Table 4.4 contains the information extracted from the MPC survey about the relationship between the size and the classification of practice areas. Taking all areas together, almost one in ten were single-doctor areas and a further fifth contained between two and four doctors. Over half the areas had fewer than ten principals. At the other extreme, 12 per cent of areas contained 30 or more principals, 5 per cent contained 40 or more, and 2 per cent had 50 or more doctors. (There were in fact 12 areas with at least 75 doctors each). The table also shows that the size of areas varies considerably with their classification. To put the point simply, the majority of restricted areas are small and the majority of small areas are restricted; conversely, the majority of designated and open areas are relatively large and the majority of large areas are designated or open. Whereas more than nine out of every ten restricted areas contained fewer than

ten principals, the proportion fell to between 20 and 30 per cent in the designated and open areas. Conversely, about two-fifths of designated and open areas had at least 20 principals compared with only 4 per cent of restricted areas. A different facet of the same relationship between area size and classification is expressed in the bottom row of the table, showing the mean number of principals in each type of area. Designated and open areas contained, on average, about 20 principals each, whereas restricted areas had only a quarter as many.

This marked variation in the size of the practice areas seems to have arisen by chance. As noted in chapter 3, the boundaries proposed initially by the executive councils in 1948 followed closely those of the local authorities, with the result not only that the practice areas offered in size, but also that the rural areas generally contained fewer people than the more densely populated urban areas. Since rural practice has seemingly always been attractive to many general practitioners in England (and remains so; see chapter 14), the country areas have tended to exhibit lower list sizes than the towns, as well as being smaller in size.

There are, however, other influences at work. The nature of the overspill rule, for example, makes it virtually impossible for a one-doctor area to be designated, for the list would need to be at least 5,000. By the same reckoning the minimum average list per doctor for a two-doctor area to become designated would be 3,750, for a three-doctor area 3,333, and for a four-doctor area 3,125. Very small areas, in other words, are inherently unlikely to be designated. Closely related to this is the volition of the local medical community. Local medical committees are understandably anxious to secure the designated areas allowance for as many practitioners as possible and will therefore wish to keep the designated areas as large as is consistent with their continuing designation. The same pressures may, of course, work to diminish the

size of an area if the fragmentation of, say, a large intermediate area would create new, smaller designated areas; but even in this situation the fragmentation would in principle probably be done in such a way as to optimise the coverage of the designated areas.

The average list size in areas

The distribution of areas according to the average list sizes within each classification is given in table 4.5. The range between 2,500 and 2,749 is shown in intervals of 50 because designated areas falling within this range are at greatest risk of becoming de-designated and are therefore of special interest. Taking all areas together, 63 per cent (containing 58 per cent of all unrestricted principals) had average lists below 2,500; 21 per cent (with 29 per cent of principals) fell within the 'marginal' range between 2,500 and 2,749;* and 16 per cent (containing 13 per cent of all principals) had average lists above 2,750. There were obvious variations between area types. Of the restricted areas, only a third ostensibly fell within the normal criterion of restriction (i.e. with an average list below 1,800) although almost nine out of every ten restricted areas had average lists below 2,500. Of the intermediate areas a similar proportion (84 per cent) apparently had average lists below 2,500, but the bulk of these fell within the band 2,100 - 2,499 which at the time of the survey was outside the normal criterion for this type of area. About half the open areas ostensibly fell within the appropriate criterion (i.e. with average lists between 2,100 and 2,499), but the other half all had

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* There is no officially accepted definition of a 'marginal' designated area. The nearer the average list size comes to 2,500, the greater is the risk of de-designation with the addition of one or two extra principals; hence the special interest in areas falling within the range 2,500 - 2,749. In fact, however, the best definition of a marginal area may be that in which the addition of one extra principal would cause de-designation. Of the 247 designated areas in the MPC survey, just over a quarter were marginal on this definition.

lists above 2,500 and almost one in five had average lists in excess of 2,600. Of the designated areas, 40 per cent came within the range 2,500-2,749 and 42 per cent within the range 2,750-2,999. Seventeen per cent of the designated areas had average lists in excess of 3,000.

A separate analysis (not shown in the table) of the 267 areas which were estimated at the time of the MPC survey to be eligible for the designated area allowance revealed that 224 were designated, 40 were open and 3 were restricted. Of these 267 areas, 8 per cent had average lists below 2,500 (these areas having presumably been de-designated since qualifying); 40 per cent had lists between 2,500 and 2,749; 37 per cent had lists between 2,750 and 2,999; and the remaining 15 per cent had lists above 3,000. These percentages are very similar to those for all designated areas, whether qualifying for the allowance or not.

The average list sizes shown in table 4.5 are those contained in the returns made by executive councils to the MPC, before any adjustments have been made by the Committee. The main adjustments, as noted above, are to allow for the overspill rule (in the case of designated areas) and for the element of inflation in the list sizes resulting from delays in transferring patients' records when they move, die or emigrate. For these reasons the figures in the table cannot be taken as an absolute measure of the extent to which factors other than list size are considered in decisions about the classification of each area, but it is clear nonetheless that the list sizes for many areas are so far outside the normal range for their classification that other over-riding considerations must commonly be taken into account.

Average list size and size of areas

The information presented so far has dealt with the size of practice areas and with the average list size in areas. The data extracted from the MPC survey enables, for the first time, the relationship between these

two statistics to be mapped. The data are given in table 4.6, which, unlike the preceding three tables, contains absolute numbers, not percentages. The most important conclusion is seen in the overall shape of the table: the dispersion of average list size decreases as the size of area increases. Among the smallest areas (1-4 principals) the average list size ranged from under 1,800 to more than 3,500, and only two-fifths of these areas fell within the centre of the range (between 2,100 and 2,750). As the size of areas increases so also does the proportion of areas coming within this central range. For example, of areas with 5-9 principals, 53 per cent came within this range; of areas with 10-19 principals, 64 per cent came into the range; and among areas with more than 40 principals the proportion was at least 90 per cent. Correspondingly, the number of areas at the extremes of the range decreased with increasing area size and almost no areas with more than 20 principals had average lists either above 3,000 or below 1,800.

Separate analyses made for each class of area showed that the basic 'inverse pyramid' shape held good for each area type, albeit with the designated areas pushed very much farther to the right of the table and the intermediate and restricted areas located nearer to the left.

These results are of major importance in assessing the appropriateness of the size of the practice areas, and they are consistent with the comments in chapter 1 about the tendency for the apparent geographical imbalance in manpower distribution to be minimised as larger area units are selected. They are also consistent with (although derived independently of) the conclusions in the next chapter about the extent to which regional and county mean list sizes obscure smaller areas of severe relative manpower shortage. The data in table 4.6 suggest that, for practice areas to be capable of discriminating localities with real variations in mean list sizes, the maximum size of an area should be limited to some 20 doctors. As areas become larger than this, the mean tends to move towards the national figure

and loses sensitivity. In fact at the time of the MPC survey almost a quarter of the practice areas (comprising 60 per cent of all unrestricted principals) contained 20 or more doctors, indicating a substantial problem in using the practice areas as the major units in assessing the degree of maldistribution of primary medical manpower.

The question of a minimum size for practice areas is less important because small areas do not present the same problems of identification of shortages and surpluses. They do, however, tend towards an instability of classification, fluctuating even between designated and restricted status with the addition or loss of only one principal. The overspill rule is intended partly to forestall this administrative nuisance, but its operation is resented by many doctors in small areas (Butler and Knight, 1974a).

The dispersion of individual list sizes within areas

The statistic of list size has been used so far exclusively in the context of the average list size in practice areas. That average, by its very nature, says nothing about the dispersion of individual list sizes within areas, but the DHSS tabulations enable these data to be extracted. They are summarised in table 4.7, and they illustrate the wide dispersion of individual list sizes within each type of area. In designated areas, 7 per cent of principals had lists below 1,900 and a further 22 per cent had lists between 1,900 and 2,500. In all, therefore, almost one in three doctors in designated areas had individual lists below the normal threshold of designation. In open areas the median list size was 2,495, which means that nearly half the doctors in these areas had lists above this figure (and almost one in five had lists in excess of 3,000). By definition these doctors would be ineligible for the designated area allowance, except during a concessionary period following de-designation. Even in intermediate areas a third of principals had individual lists above 2,500, and in

restricted areas the figure was 13 per cent. Among principals in all non-designated areas, 38 per cent had lists above 2,500.

These results indicate that by basing the classification of a practice area on its mean list size, many individual doctors will have actual list sizes outside the defined range for the area. The discrepancy, which will be greater in large than in smaller areas, means that, although a list of between about 2,200 and 2,500 patients is deemed to be appropriate, existing policies are not directed towards the attainment of this objective for individual practitioners. By concentrating exclusively upon the average list size in areas, no direct control is available over the wide variation around the average that may occur for individual practices, especially practices with more than 2,500 patients.

Problems in the use of medical practice areas for assessing manpower distribution

The information presented in this chapter and in chapter 3 about the origins, number, location and structure of the medical practice areas in England indicates a number of problems in their use as area units in distributional assessments and policies.

The first problem can be approached through the apparent paradox that, although it is the objective of the policies described in chapter 3 to attract additional manpower to the designated areas, increases in the number of doctors located in these areas have generally been regarded as valid evidence of a worsening distribution (chapter 2). The 'solution' to the paradox is simple: it is a policy objective to attract additional doctors to the designated areas, but in sufficient number to reduce the average list size in them below 2,500, thereby causing them to be de-designated and the number of designated doctors to fall. What may happen, however, is a partial solution: that some doctors are attracted, though

not enough to reduce the average list size below 2,500. In these cases, an increase in the number of GPs practising in designated areas will actually constitute a desirable trend. The converse argument applies to data showing a decline over time in the number of doctors in designated areas: although such data are generally regarded as evidence of a favourable distributional trend, they may in fact reflect an undesirable process if they mean that fewer doctors are working in the same number of designated areas, with the average list sizes rising as a consequent.

It is obvious that this need not necessarily be a problem if the changes in the number of doctors over time are presented for each individual practice area. It would then be possible to distinguish between an increase in the number of doctors in designated areas resulting from a movement of practitioners to the same number of areas and an increase resulting from an expansion in the number of designated areas. In fact, however, neither the DHSS nor the MPC has ever attempted to do this. The annual sets of data always refer to the classifications of areas at the time of the compilation of the data, and there is no way of tracing the changes over time in the same areas. A rough judgement about the reality of secular trends can be formed by interpreting the changes in the total number of doctors in the light of changes in the total number of each class if area. If, for example, the number of GPs in designated areas increases during a period of no change in the number of designated areas, it might be concluded that extra doctors were moving into designated areas, albeit in insufficient numbers to cause their de-designation. Such a process would be desirable. There is, however, no way of tracing the gross changes underlying the net changes between the beginning and the end of the period. Thus, the extreme alternative explanation for the illustration above may be that all the designated areas at the beginning of the period had become de-designated during the period, to be replaced by the same number of newly designated areas, albeit larger areas containing more doctors. Moreover, not only are

the gross changes in area classifications unrecorded, the areas themselves are continually changing as some are merged, others divided, and others have their boundaries revised. In summary, whilst the need is for flow data from identifiable units over time, the available statistics are merely of stock data for unidentified units. The only exceptions to this are the DHSS tabulations of net admissions to practice areas, summarised in table 3.1, which show the net admissions according to the classification of the areas at the time of admission and withdrawal. The remaining statistics, however, all suffer from the flaw described above.

A second problem in the use of the medical practice areas and their mode of classification concerns the lack of differentiation within each area classification. Designated areas, for example, are regarded as homogeneous units, with no allowance made for the considerable range in average list sizes within them (table 4.5) or for the changes over time in their average list sizes (table 2.1). All patients in these areas are held to be equally deprived of general practitioner care, and corrective policies are applied uniformly within each class of area. The use of a broad classification system based upon ranges in average list size diversifies the possible definitions of maldistribution that may be adopted. Accepting for the time being the use of average list size as an appropriate index of equity, it is apparent that, with the current use of medical practice areas, at least two different approaches may be adopted to the question: what is a fair distribution? One approach would describe a fair distribution as that in which as few patients as possible are on larger lists than the conventionally accepted maximum size for any one doctor. Since this maximum is currently about 2,500 (at least in terms of official policy), those who accept this definition of a 'fair distribution' would seek evidence of a desirable trend in the distribution of GPs in a decline in the number of designated areas and in the proportions of doctors and patients in them. But there is another possible answer to that question, namely that a fair

distribution is one in which the range in list sizes between areas is as narrow as possible, thus ensuring that patients in different parts of the country have more or less equal access to the services of a family doctor. Using this definition, signs of an improvement in the distribution of GPs would be sought in a reduction in the range of list sizes between the best and the worst areas: this might, for example, be evidenced in a declining disparity over time between average list sizes in designated and restricted areas.

These two alternative definitions of a 'fair distribution' are mutually incompatible when the national average list size exceeds the conventionally agreed maximum for each doctor. In this case each concept of a fair distribution can be fully achieved only at the expense of the other. A simple hypothetical example will illustrate the point. Among a patient population of 49 million, served by 19,000 doctors, the mean list size would be 2,579. In achieving the first aim (that of securing the greatest possible number of patients on lists below 2,500) it would theoretically be possible to arrange the doctors and patients spatially in such a way that 95 per cent of the population were on average lists of 2,475. This, however, would leave the remaining 5 per cent of the population on average lists of 12,760 - a gross inequality in the light of the second concept of fairness. Alternatively, a distribution could theoretically be arranged whereby each doctor had exactly 2,579 patients on his list. This would be a perfect situation in terms of the second concept of fairness (since there would be no variation at all between different parts of the country), but it would mean that every single patient was on a list above 2,500.

When the national average list is less than the generally accepted maximum, then both definitions of fairness can be satisfied at once. This would have been the case in England in 1972 if the average list size for the whole country (2,421) had also been repeated evenly throughout all

the medical practice areas. It is, however, quite impossible to envisage anything even approaching such a perfect distribution occurring spontaneously in a free society, and so in practice a judgement may have to be made on the value of a tendency to move towards one or the other objective. For example, at a time when the national average list size is rising, a reduction in the number of designated areas (a desirable goal relative to the first aim) will usually be achieved only at the expense of an increasing disparity between list sizes in the remaining designated areas and the rest of the country (an undesirable outcome relative to the second aim). A judgement must then be made about the relative values of the two objectives.

The interest in relating resources to population in this way is not merely academic, for different interpretations of a fair distribution may lead to very different conclusions about what is actually happening. The BMA, for example, has consistently interpreted an increasing number of patients in designated areas as evidence of the failure of the allowance, but in fact it is evidence of failure only in the context of the first concept of fairness which, as has been noted, may not be the best definition at a time when list sizes are increasing across the country. The Review Body, on the other hand, was clearly concerned in its twelfth report (1970) with the problem of the range between list sizes, for the introduction of the two-level system of payment makes sense only in terms of this particular definition of the problem. Yet the effect of reducing the number of areas with very large lists would be to increase the overall number of designated and open areas unless the total stock of general practitioners could simultaneously be augmented. Here then, lies the choice. Of the two extreme situations in the hypothetical example above it would presumably be preferable for all patients to be on lists of 2,579 (in effect, for all areas to be designated) than for 95 per cent to be on average lists of 2,475 and the remaining 5 per cent on lists of 12,760. These are the extreme cases, but they show that an increase in the number of patients in

designated areas is not necessarily evidence of a worsening distribution of available manpower, even though it may well be a sign that more doctors are needed in total.

The literature on GP manpower also contains examples of the failure to distinguish between the supply and distribution of general practitioners. An OHE report in 1963 included a chart showing the number of patients in each class of area from 1952 onwards (Office of Health Economics, 1963). Open and intermediate areas are described in the chart as ones of 'balanced distribution', and the text states that 'since the mid-1950s there has been less progress in obtaining a better balance in the distribution of doctors'. The same chart was repeated in the RCGPs' survey of the present state and future needs of general practicee in 1970, and identical conclusions were drawn (Royal College of General Practitioners, 1970). The chart was used more recently by Clarke (1971), who commented that 'attempts to distribute general practitioners more evenly have met with little success since 1963 (because) the number of people living in designated areas has risen from 9 million in 1963 to 18 million in 1968'. It is, however, a matter of common sense that 'even-ness of distribution' relates to the variability of list sizes over the country, not to the actual number of patients per doctor. An increasing proportion of patients in designated areas might indicate a growing imbalance in distribution, but might equally be an effect of the decreasing stock of family doctors relative to the population.

A third problem in the use of medical practice areas as the territorial units in distributional assessments and policies is that of their variability in size. The essence of the problem has already been discussed. The range in size, from large cities with populations of 300,000+ to small housing estates and sub-divisions of rural districts, not only renders aggregates of patients and doctors across area classes meaningless, it also introduces an element of injustice and counter-productivity into the administration of

the designated areas allowance. For example, a practice area covering an entire city may, by virtue of its small average list size, fail to qualify for the allowance, yet it may contain sectors with a manifest shortage of manpower and excessively high demands upon doctors practising there. It is clearly inappropriate in such places to define the entire borough as a single practice area, for it would matter little to either doctors or patients in the hard-pressed sectors that practitioners elsewhere in the city had sufficiently small lists to maintain the overall average below the criterion of designation. The converse situation, equally indefensible, would be one in which all the practitioners in a large borough received a designated areas allowance, even though many may be practising with small lists in attractive neighbourhoods.

It is clear from this illustration that the practice areas fail to reflect the concept, discussed in the introduction, of the medical trading area. Unless the boundaries of the practice areas encompass identifiably discreet groupings of doctors and patients, they fail to define areas that may meaningfully be used for the purpose of judging the adequacy of manpower distribution. A detailed examination of the medical practice areas in the light of this criterion was beyond the scope of the research reported in this thesis, but the data reported above on the relationship between the size and the average list size of the areas suggest that an area with a maximum of about 20 doctors is most likely to discriminate between geographical units with differing list sizes. In areas larger than this, the logic and the value of aggregating the properties of areas of the same class are dubious.

A final problem in the use of medical practice areas concerned their failure to correspond consistently with other area units in local government and health service administration. Because of the ad hoc nature of the areas, a range of socio-economic data that are available from the census

and other sources for most administrative units are not available for the medical practice areas. Ecological analyses of the kind described in chapter 1, which relate area characteristics as independent variables to doctor-population ratios as dependent variables, are thus impossible at the level of the medical practice area, although they may of course be performed at higher levels of aggregation - the FPC area or the standard region. Although analyses at these higher levels would be useful, they may, by virtue of the variability within regions and within FPC areas, account for only a small part of the total variance in average list sizes.

Finally, it may be noted that the failure since 1974 to achieve a complete harmonisation of the boundaries of medical practice areas and health districts may diminish the scope for incorporating primary medical manpower planning as a full part of the integrated health service. Although no information has been published of the extent to which practice areas cut across health districts (and even health areas), a survey of executive council clerks shortly before reorganisation offered some evidence of the likely extent of mismatched boundaries (Butler and Knight, 1974a). Of the 108 ECs represented in the survey, 40 per cent contained practice areas which the clerks thought would, as a result of reorganisation, fall across two or more area health authorities; 57 per cent contained no such areas; and in 3 per cent of cases the position remained unclarified at the time of the survey. Just over two-fifths (44 per cent) of the 108 EC clerks responding to the survey argued a case for revising the boundaries of the practice areas at the time of reorganisation, most commonly with the objective of harmonising practice area and health district boundaries. It was felt that, with the future emphasis on the district as the operational unit for the planning and management of the integrated service, the interests of general practice might be impaired unless it could be fully incorporated into the new planning system. In order to achieve this whilst maintaining the separate apparatus of the Medical Practices Committee,

the practice areas would need the capacity to aggregate up to health districts and to exploit the district information services. Two replies of EC clerks quoted in the survey report illustrate the flavour of the argument.

> 'It is desirable, for forward planning purposes, for practice areas to be based on these districts as far as possible. This does not mean that each district should be regarded as one complete practice area because many would, in my view, be far too large for this purpose. However, there would be nothing to preclude a sub-division of the districts for practice area purposes. Once again, it would be desirable that the practice areas should not straddle the boundaries of the new districts, bearing in mind the viable practice area proviso.'

> 'I feel it might well be advantageous to consider redrawing MPC area boundaries, where necessary to be coterminous (perhaps in groups) with Districts; I feel that this would result in the production of more reliable information on which the Family Practitioner Committee and MPC would base their classification of areas.'

Table 4.1 Comparison of MPC survey and DHSS tabulations: number of unrestricted principals and patients, by type of practice area (England)

(Source: MPC survey; DHSS tabulations)

	Type of area				
	desig-nated	open	inter-mediate	res-tricted	all areas
Number of principals:					
MPC survey	5,065	7,098	5,218	2,410	19,791
	(26)	(36)	(26)	(12)	(100)
DHSS tabulations	5,099	7,171	5,121	2,384	19,775
	(26)	(36)	(26)	(12)	(100)
Number of patients (millions):					
MPC survey	14.3	17.9	11.9	4.8	48.9
	(29)	(37)	(24)	(10)	(100)
DHSS tabulations	14.1	17.6	11.5	4.6	47.9
	(29)	(37)	(24)	(10)	(100)

Percentages calculated across rows, and included in brackets

Table 4.2 Distribution of medical practice areas, by type, at 1 January 1966-73 (England)

(Source: MPC lists)

Year	Number of areas by type				All areas
	desig-nated	open	inter-mediate	res-tricted	
1966	241(14)	662(38)	253(15)	572(33)	1,728(100)
1967	274(16)	612(36)	278(16)	557(32)	1,721(100)
1968	318(19)	534(32)	289(17)	517(31)	1,658(100)
1969	332(20)	467(29)	329(20)	493(30)	1,621(100)
1970	320(20)	424(27)	330(21)	505(32)	1,579(100)
1971	320(20)	374(24)	320(20)	562(36)	1,576(100)
1972	285(19)	347(23)	319(22)	532(36)	1,482(100)
1973	238(16)	347(24)	355(24)	526(36)	1,466(100)

Percentages calculated across rows, and included in brackets

Table 4.3 Percentage distribution of medical practice areas, by type of area and standard region, and local authority areas, 1972-3 (England)

(Source: MPC survey)

Standard region / local authority areas	Percentage of areas by type				no. of areas (=100%)
	desig-nated	open	inter-mediate	res-tricted	
North	20	20	15	45	130
Yorkshire/ Humberside	28	24	19	29	156
East Midlands	28	19	17	36	138
East Anglia	8	14	28	50	78
South East	10	34	32	24	423
South West	2	10	21	67	263
West Midlands	23	26	23	28	137
North West	40	36	18	6	134
Counties	15	20	23	42	1,183
County boroughs	38	43	16	2	165
Greater London	8	37	41	14	111
England, total	17	24	23	36	1,459

Table 4.4 Percentage distribution of medical practice areas, by type of area and number of unrestricted principals, 1972-3 (England)

(Source: MPC survey)

No. of principals in area	Percentage of areas by type				all areas
	desig-nated	open	inter-mediate	res-tricted	
1	-	-	1	25	9
2 - 4	2	5	14	48	22
5 - 9	20	24	30	19	23
10 - 19	34	31	30	4	22
20 - 29	23	17	12	1	11
30 - 39	13	12	7	2	7
40 - 49	3	6	3	1	3
50 - 59	2	2	2	-	1
60+	3	2	1	-	1
no. of areas (=100%)	247	354	341	517	1,459
average no.of principals per area	20.5	20.0	15.3	4.7	13.6

Table 4.5 Percentage distribution of medical practice areas, by type of area and average list size, 1972-3 (England)

(Source: MPC survey)

Average list size of area	Percentage of areas by type				
	desig-nated	open	inter-mediate	res-tricted	all areas
under 1,800	-	-	-	32	12
1,800 - 2,099	-	-	13	31	14
2,100 - 2,499	1	48	71	25	37
2,500 - 2,549	2	12	4	2	5
2,550 - 2,599	4	11	2	2	4
2,600 - 2,649	10	7	2	1	4
2,650 - 2,699	11	5	2	1	4
2,700 - 2,749	13	4	1	1	4
2,750 - 2,999	42	11	3	3	11
3,000 - 3,249	11	2	1	1	3
3,250+	6	-	1	1	2
no.of areas (= 100%)	247	354	341	517	1,459

Table 4.6 Distribution of medical practice areas, by average list size and number of unrestricted principals, 1972-3 (England)

(Source: MPC survey)

No. of principals in area	Number of areas by average list size							
	under 1,800	1,800-2,099	2,100-2,499	2,500-2,749	2,750-2,999	3,000-3,249	3,250 +	all areas
1 - 4	134	89	124	50	28	12	20	457
5 - 9	28	53	118	58	51	17	9	334
10 - 19	6	38	135	70	56	11	2	318
20 - 29	1	11	70	61	17	3	-	163
30 - 39	-	10	50	35	12	-	-	107
40 - 49	-	4	26	11	2	-	-	43
50 - 59	-	-	9	9	-	-	-	18
60+	-	-	11	7	1	-	-	19
all areas	169	205	543	301	167	43	31	1,459

Table 4.7 Percentage distribution of unrestricted principals, by type of practice area and individual list size, 1972 (England)

(Source: DHSS tabulations)

Individual list size*	Percentage of principals by type of area				all areas
	designated	open	intermediate	restricted	
under 1,600	3	8	14	24	10
1,600 - 1,899	4	8	13	23	10
1,900 - 2,499	22	34	40	40	33
2,500 - 2,999	37	32	22	9	28
3,000+	34	18	11	4	19
no. of principals (=100%)	5,099	7,171	5,121	2,384	19,775

* Individual list is taken as the personal list size for single-handed practitioners and the practice average for those in partnerships or group practices.

CHAPTER 5

THE DISTRIBUTION OF PRINCIPALS IN ENGLAND

In this chapter the unit of analysis moves from the medical practice area to the individual practitioner. How are general practitioners distributed between practice areas and between different parts of the country? The chapter is structured in two main sections. The first section considers the time trends in the distribution of GPs between practice areas; it seeks to comment on the possible interpretations that may be made of the trends, and it offers a judgement on the impact of the designated areas allowance on the distributional patterns. The second section uses two different measures of distribution to map the geographical location of areas of manpower shortage in England at 1st October 1970. Although more recent data on the location of GPs are available, this date has been specifically selected to provide a chronologically synchronated background to the report of the survey of GPs, described in the second section of this thesis, which was carried out between November 1969 and March 1970.

Trends in the distribution of family doctors between practice areas

The arrangement of material in this section follows the distinction drawn in chapter 4 between an evaluation of distributional trends in terms of the number of areas (and the numbers of patients and practitioners contained therein) with average lists above an arbitarily chosen maximum, and an evaluation in terms of the range in list size between the best and the worst areas. The trend since 1952 in the proportions of unrestricted principals in England and Wales practising in each class of area has been set out in table 2.1. That table also gives the average list in each area class, and for England and Wales in total, in each year since 1952. The ratios of the average list size in each area to the national average are set out in table 5.1. Graph 5.2 is a composite representation of

of annual trends since 1952 in the total numbers of unrestricted principals, the proportion of principals practising in designated areas, and the average list size for the whole of England and Wales. The graph may be used to note the coincidence in time of changes in each variable, but it may not be used to contrast the relative slopes of the three lines.

For ten years from 1952 onwards, the proportion of principals in England and Wales who were practising in designated areas fell steadily, with the exception of a slight upward turn in 1958-59. A similar trend occurred among the patient population. The decline for both doctors and patients was more marked in the first than the second half of the period. In open and intermediate areas combined, the proportion rose rapidly between 1952 and 1955, increased slightly in the following three years, and fluctuated between 75 and 80 per cent for the next four years. In restricted areas, the proportion remained almost constant over the ten years. These figures undoubtedly reveal a decline, most markedly in the early part of this ten-year period, in the geographical spread or extensiveness of areas in which the average list size exceeded the accepted maximum for good practice. It does not appear, however, that any substantial redistribution of GPs between the practice areas occurred during this period. It will be seen (graph 5.2) that the total stock of practitioners in England and Wales increased in each of the ten years (more rapidly in the first than the second half of the period), and the fact that the rate of increase in the stock of GPs was faster than that in the population is evidenced in the falling national average list size between 1952 and 1958. Taking the three indicators together, it would appear that the rapid increase in the total supply of general practitioners resulted in a widespread decline in average list sizes everywhere - in the designated areas as well as the better-endowed areas. Many areas ceased to be designated as the average fell below 2,500, and this was reflected in the dwindling

proportions of practitioners in designated areas in subsequent years. However, the failure to achieve a net redistribution of manpower from one class of area to another is seen in the maintenance throughout this period of almost constant ratios of the average list size in each area to the national average (table 5.1). In designated areas, the average between 1952 and 1962 remained virtually static at 117-120 per cent of the national average; the average in restricted areas also remained fairly constant at between 65 and 70 per cent of the national average. In other words, the overall improvement in doctor-patient ratios between 1952 and 1960 favoured the designated and the restricted areas equally. There were fewer designated areas at the end of the period than at the beginning, but mean list sizes in those that remained designated were as high as ever in relation to the national figure.

From 1962 to 1968 the trends reversed. The rate of population growth from 1958 onwards exceeded the growth in the stock of GPs, and the national average list size began to increase. The rate of increase accelerated in 1962 with the dwindling supply of family doctors, and rose even more steeply from 1963 as the stock of GPs diminished in absolute terms. The effect on the classification of practice areas was exactly the reverse of that in the 1952-62 period: an increasing number of areas became designated as list sizes rose everywhere (table 4.2), and the proportion of GPs in these places increased inexorably. The increase was quite modest from 1961 to 1964, but much bigger from 1964 to 1968. It was these trends, as noted in chapter 2, that fuelled the BMA's demands for the introduction of financial incentives in the designated areas, yet within the context of a rapid national increase in list sizes, there actually occurred a slight net redistribution in <u>favour</u> of the designated areas from 1962 onwards. From having an average list size of 119 per cent of the national figure in 1962, the designated areas slowly but consistently improved their relative position to 113 per cent by 1970. The restricted areas, by

contrast, displayed a parallel worsening of their relative position, moving from an average list size of 70 per cent of the national average in 1962 to 77 per cent by 1970 (table 5.1). Although the reasons for this slight redistribution are unclear, it seems improbable that the introduction of the designated areas allowance in 1966 had any effect at all. The allowance was not paid at the full rate until April 1967, and by no means all the areas that were designated on that date were eligible for its receipt. Even by 1970, only 55 per cent of all designated areas were eligible.

From 1968 onwards a further shift has occurred in the trends. The decline in the total stock of practitioners was halted in 1967 and reversed in 1968. Since 1969 the increase in the total supply of GPs has outstripped the rate of population growth and the national average list size has fallen again, most sharply between 1971 and 1972. Yet as in the period from 1952 onwards, the decline has apparently benefited each class of practice area equally. The designated areas have benefited in one sense: the number of these areas has fallen from 318 in 1968 to 238 in 1973 (table 4.2), and the proportion of principals in them has fallen in each year since 1968, most sharply between 1971 and 1972. The absence of a net redistribution of manpower towards the designated areas, however, is seen in the fact that the average list size in these areas has actually increased slightly as a ratio of the national figure (from 113 in 1970 to 116 in 1974). There has been a steady movement of the average list size in the restricted areas towards the national figure: by 1974, the ratio had increased to 82.

Three conclusions seem permissible from this analysis. First, a close relationship appears to exist between the national average list size and the proportion of principals (and patients) in designated areas. If it is an objective of policy to minimise the number of patients in areas with average lists in excess of a specified figure, the target can

apparently be achieved by increasing the total supply of doctors at a faster rate than the growth of the population. The 'excess' doctors thus produced will apparently distribute themselves in a similar way to the existing stock, with a resulting decline in average list sizes throughout the country, leaving no net distribution from one area to another. There is no evidence from the British experience of the point at which the relationship ceases to hold good. A substantial further increase in the supply of family doctors, coupled with a rigorous exercise of negative control, might be expected to succeed in eliminating the designated areas as they are currently defined; but the rate of return would probably be a diminishing one. As the least attractive of the designated areas remained, a higher proportion of the additional supply of doctors may choose an alternative branch of medicine in preference to general practice in these areas.

Second, the changes in the total stock of GP manpower appear unrelated to the net redistribution of practitioners from one class of area to another. If the policy objective is the minimisation of the range of average list sizes between areas, it cannot apparently be achieved merely by increasing the total supply of doctors. This conclusion is consistent with the arguments of contemporary American writers (e.g. Rushing, 1975) that merely to increase the output of the medical schools fails to attack the structural features of society that determine how the stock of medical manpower (whether large or small) is located spatially. Again, however, the policy preferences must be clearly articulated. If the most important goal is simply the elimination of the designated areas, the means of its achievement appear to lie in the output of the medical schools. If, however, a diminution in the range of list sizes between areas is desired, regardless of the absolute level of the list size in the least endowed areas, then an increase in total manpower supply would not appear to offer a feasible solution.

The third conclusion to be drawn from these analyses of trends since

1952 is that the net redistribution of practitioners between area classes has been very slight over the entire period. In designated areas, the ratio of average list sizes to the national figure has not varied by more than seven points over the entire twenty-year period, and in open and intermediate areas the largest variation is six points (table 5.1). The consistency of these ratios has remained throughout a period of considerable expansion and contraction in the number and coverage of the designated areas. The most consistent trend towards the equalisation of list sizes between area classes over this period is seen in the restricted areas. The ratio of the average list size in these areas to the national average has steadily increased throughout the post-war period, rising from 65 per cent of the national average in 1952 to 82 per cent in 1974. The most plausible explanation for this trend lies in the negative control exerted by the Medical Practices Committee over the entry of family doctors into restricted areas. It was shown in chapter 3 that only about one-tenth of net admissions to the medical lists in recent years has occurred in restricted areas, and the attainment of similar figures over a longer period of time would adequately explain the gradual movement of the average list size in these areas towards the national mean. The movement would have been much greater if all replacement entries had also been disallowed in restricted areas, but the evidence does at least point to a positive (albeit gradual)achievement of goals.

The effect of the designated areas allowance is more problematic. The difficulty was noted in chapter 1 of evaluating the specific effects of particular strategies in the absence of satisfactory control groups. The problem is highlighted in a National Health Service, where new policies (such as the designated areas allowance) tend to be implemented on a nation-wide basis, eliminating the use even of non-random control groups as an evaluative tool. For this reason the true impact of the allowance will never be known. However, all the evidence in this chapter points

towards a neutral effect. The post-war trends in manpower distribution between area classes have been motivated primarily by the relationship between the total supply of family doctors and the rate of population growth; and the introduction of a small cash incentive in 1966 has not (and could not, in the light of this historical analysis, have been expected to)disrupt the deep ebb and flow of these trends. Even the slight net redistribution of manpower in favour of the designated areas between 1962 and 1970 cannot be attributed to the allowance, for the movement was underway well before its introduction in 1966, and it continued in a linear fashion for a further four years.

This conclusion about the neutral effect of the designated areas allowance on the distribution of general practitioners is consistent with the evidence assembled by Glaser (1970) of the apparent failure of financial inducements in other countries to counteract traditional trends in manpower location (see chapter 1), and is consistent also with the results of the survey, reported in the second section of this thesis, showing the low-ranking of financial incentives in doctors' self-reported hierarchies of locational motivations. To the extent, therefore, that the allowance is explicitly seen as an incentive, it has almost certainly failed. It may, however, be regarded more as a compensation than an inducement, and may be justified on those grounds. Alternative criteria would then be needed to evaluate the allowance, and although such an exercise is beyond the scope of this thesis, it may be noted that the regulation requiring an area to be designated for three years before becoming eligible for the allowance, and the rule that the allowance ceases to be payable after the elapse of a concessionary three-year period following de-designation, are not obviously compatible with the concept of the allowance as compensation.

The geographical dimensions of manpower shortage

The two alternative concepts of a fair distribution of doctors,

described in chapter 4, are reflected in two different ways of contrasting the shortage of manpower in different localities. The spread or extensiveness of the designated areas can be measured simply by counting the number of doctors practising in designated areas in each standard region, county, or whatever area unit is chosen. The variations between the units can then be assessed. Alternatively, the relative depth of deprivation in different places can be measured by calculating the number of extra doctors that would be needed in order to bring the average list size of the unit to 2,500. This figure may be expressed either as a shortage of GPs (when the average list exceeds 2,500) or as a surplus (when the average is less than 2,500). Whichever of the two methods is used, it is generally desirable to express the results as rates rather than absolute numbers because the established area units (such as standard regions, executive councils, etc.) vary enormously in size. In 1970, for example, Lancashire Executive Council contained 509 principals in designated areas whereas Cambridgeshire and Isle of Ely Executive Council had only 11. These absolute numbers may be relevant for some purposes: they show, for instance, that however large a proportion this might represent of all principals in Cambridgeshire, the contribution of that executive council to the national situation was negligible. But for the purposes of contrasting the two executive councils these absolute numbers are useless: they must obviously be expressed as a proportion of all principals in each place. Similarly, the shortage (or surplus) of doctors can be expressed usefully as a rate per million patients.

It should be emphasised again that the two approaches do not necessarily yield consistent results. Depending upon internal variability, it is possible for an area unit to have an average list of less than 2,500 (and therefore suffer no shortage of doctors in terms of the second criterion) yet still to contain a fairly high proportion of practitioners in designated areas. The Newcastle Executive Council is a case in point:

in 1970 this unit had an average list size of only 2,419, yet more than three-quarters (76 per cent) of all its principals were working in designated areas. The explanation lies in the heterogeneity within the unit whereby large lists in one practice area were offset for the purposes of calculating the average list size for the executive council by smaller lists elsewhere. The reverse situation, of units with a large shortfall of doctors but no designated areas, is much less common because it would require several areas with average lists well above 2,500 to remain for some reason undesignated.

Neither of these two ways of measuring the shortage of family doctors is inherently 'correct'. In general, the larger the unit the less useful is the second measure of shortfall, for large and significant local variations within the unit may be concealed within the overall average. On the other hand, by calculating the rate of shortfall (or surplus) it is possible to distinguish units requiring extra doctors in order to eliminate their designated areas from those which could achieve the same result merely by an internal redistribution of existing practitioners. Whenever there is a surplus it is always possible in principle to eliminate all designated areas in that unit merely by rearranging existing doctors, regardless of the actual proportion of GPs in designated areas. Moreover, even among units which do actually require extra doctors, some need a good deal more than others. This can be put the other way round by saying that for the addition of a given number of doctors, many more people might be brought within list sizes of 2,500 in one unit than in another. It raises again the question of whether a redistributive policy (assuming it were effective) should seek primarily to achieve very substantial reductions in the average list sizes of a small number of heavily under-doctored areas, or to secure the greatest possible number of patients on lists below 2,500 (which would entail smaller reductions across a much larger number of areas).

The choice of area units for the purpose of contrasting one part of the country with another is of considerable significance. For practical purposes the choice is limited to those units for which the appropriate statistics are available, namely standard regions, geographical counties and executive councils. Each of these units can be 'built up' of smaller units, but the relevant data are not always cumulative in the same way. A simple count of the number of doctors in designated areas is cumulative between each stage. For example, the number of designated doctors* in the Northern region in 1970 was the total of all such doctors in the five counties of the region, and the county totals in turn were the sum of all the designated doctors within each executive council. Figures of the shortfall of doctors in each unit are not cumulative in the same way, however, because larger units may conceal substantial differences between their constituent parts. Thus in the Northern region the average list size in 1970 was 2,528 and the absolute shortfall of doctors was 15. One or two of the counties in the region had quite large shortfalls, and the requisite number of extra doctors in order to bring the average list size in each county down to 2,500 was 65 - assuming, of course, that they were optimally distributed and that there was no movement of doctors from one county in the region to another. At the level of the executive councils the total shortfall was even greater (74), and although the figures for 1970 are not available it is probable that the summation by medical practice areas would have revealed an even higher total.

As this example demonstrates, the smaller the unit chosen the greater is the apparent total shortage of doctors. When the largest possible unit is taken (England as a whole) there was a small surplus in 1970 because the national average list was 2,478. By standard regions the shortfall

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* For convenience, the phrase 'designated doctors' is used throughout the chapter as a short reference to doctors in designated areas. Strictly speaking, however, it is only the area that is designated, not the practitioner.

was 275; by geographical counties it was 453; and by executive councils it totalled 527. The elimination of the designated areas thus depends to some extent upon the maximum area within which GPs are prepared to move and settle. If most doctors were willing to settle in any part of England then the problem would be simplified, for at the national level there are (just) enough GPs to eliminate all designated areas. Most doctors are evidently not as mobile as this, but they may, with an appropriate structure of incentives, be prepared to consider most places within any region. Some regions could then eliminate their designated areas by an internal redistribution without recourse to the influx of extra manpower. If, however, the county is the largest target area for doctors choosing a practice location then the relationship between redistribution and new resources shifts again. The ultimate question is: which geographical areas must achieve average lists below 2,500 for the problem to be considered solved? Current policy identifies the medical practice area as the critical unit, but the boundaries of these areas are arbitrarily determined and it was concluded in the previous chapter that they are inappropriate units by which to judge the adequacy of staffing levels.

The distribution of principals by standard regions*

Table 5.3 shows the proportion of principals in designated areas and the shortfall or surplus (as defined above) for each standard region and executive council in England at 1 October 1970. Corresponding figures for geographical counties are not given in the table because they can be calculated from the executive council figures.

Looking first at the eight standard regions, there were large differences between the regions in the proportions of principals practising in designated areas in 1970. The West Midlands stood out very clearly as

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* For the purposes of this section, the whole of Derbyshire has been included in the East Midland Region, and Poole (Dorset) has been included in the South-Western Region. Otherwise the regional boundaries correspond with those defined in the Abstract of Regional Statistics, No.6, HMSO 1970, Appendix I.

the most extensively designated region (66 per cent of all principals), followed by the North (57 per cent), Yorkshire/Humberside (50 per cent), the East Midlands (44 per cent) and the North-West (42 per cent). None of the three southern regions had more than a fifth of its principals in designated areas, and the South-West had fewer than a tenth (8 per cent). These figures reveal a clear north/south split: just over half (51 per cent) of all principals to the north of a line from the Wash to the Severn were in designated areas in 1970 compared with only 17 per cent to the south, and the gap has been steadily widening over the past few years.

The second index of comparison, that of relative shortfalls or surpluses, also showed a similar north/south split, for whereas all the northern and midland regions had varying degrees of shortages, the three southern regions each enjoyed a surplus. This means that whilst all the designated areas in the south could in principle have been eliminated by an optimum redistribution of manpower within each region, the northern and midland regions would have needed a total of 275 extra GPs to achieve a similar result. The two midland regions suffered the most intense deprivations of manpower: not only were they extensively designated, they also experienced high shortfalls of doctors per million patients (-16.6 and -14.8 in the West and East Midlands respectively). The North-West had the next largest shortfall (-12.2 per million patients), followed by Yorkshire/Humberside (-7.8) and the North (-4.5). Of the three southern regions, the South-East had a more modest surplus (+12.0) than either East Anglia (+28.0) or the South-West(+46.4). In sum, the overall regional picture in 1970 was one of an increasing relative shortage of family doctors from the Scottish border to the midlands, with a relative abundance to the south of the Wash-Severn line, especially towards the south-west.

The static picture of the regional distribution of principals at one

moment in time must be understood in the more dynamic context of contemporary trends. Table 5.4 gives the percentage of principals in the designated areas of each region from 1967 to 1972. It shows a considerable stability in the rank positions of each region over the five years. The West Midlands, the Northern Region and the East Midlands occupied the first three ranks in each year; Yorkshire/Humberside and the North-West occupied the fourth and fifth ranks respectively in each year; and the South-East, the South-West and East Anglia ranked in sixth, seventh and eighth positions respectively in most years. Thus, in spite of an overall increase of 7.4 per cent in the total number of principals in England between 1967 and 1972, and notwithstanding a decline of 3.7 per cent in the proportion of all principals in designated areas, the relative regional concentrations of designated doctors remained unchanged. From that perspective, 1970 is not atypical of recent years. Within the consistency of the rank positions, however, some net redistribution between the regions was occurring throughout the period. The percentage change in the total number of principals ranged from +10.2 in the West Midlands to -10.9 in the South-West; and the percentage change in the number of principals in designated areas ranged from +206 in East Anglia (although the numbers involved are quite small) to -34.6 in the South-East. There is no apparent consistency in these changes. The West Midlands and the South-East appear to have achieved real reductions in the extensiveness of their designated areas; the East Midlands and East Anglia appear to have suffered real extensions; but it cannot be concluded on the basis of the available evidence that 1970 is the mid-point in a discernibly consistent pattern of movement.

The distribution of principals by executive councils

Because data relating to large geographical units may well conceal significant variations between sub-areas of the units, it is now necessary to look beyond the broad regional comparisons to more subtle local differences.

The effect is analogous to that in microscopy, when the degree of magnification is increased and new shades and contours spring into view where formerly there had been only an area of apparent uniformity. It is, however, clearly impossible to cover the entire country in one short section, and we have therefore chosen to concentrate on six major clusterings of counties which in 1970 were both extensively designated and also experienced relatively large shortfalls of doctors.

The first cluster consists of the geographical counties* of Warwickshire and Staffordshire, which between them comprised ten executive councils and in 1970 contained 1,198 principals in designated areas - almost a fifth of all such doctors in the country. Three-quarters of them were concentrated in dense urban areas, with Birmingham, Coventry, Stoke and Wolverhampton accounting for more than half. Seven of the ten executive councils were wholly designated, and all had average list sizes above 2,500. The greatest shortages of principals, relative to size were felt in Walsall, Wolverhampton, Stoke and West Bromwich. Birmingham itself, though still suffering an average list in excess of 2,500, had a shortage rate five times lower than that of Walsall.

The second cluster, in the East Midlands, is made up of the geographical counties of Derbyshire, Leicestershire and Nottinghamshire, and incorporated five executive councils. These counties in 1970 contained 473 principals in designated areas, almost half of all principals in the three counties and 7 per cent of all the designated doctors in England. A little over half of these 473 doctors were practising in the county boroughs of Nottingham, Derby and Leicester; the remainder were in the county areas. All five executive councils had average lists

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* A geographical county comprises the administrative county and all county boroughs within its boundary. In most cases each administrative county and county borough had its own corresponding executive council.

above 2,500, and the total shortfall of principals at executive council level was 53. Relative to size, the greatest shortages were felt in the three county boroughs, but even these rates were not as high as in many of the boroughs in Warwickshire and Staffordshire.

The third cluster appears in the South-East, and is made up of the counties of Essex, Hertfordshire, North-East London, and South-East London/ Kent. (The latter two were, strictly speaking, executive councils rather than geographical counties.) These four counties, comprising five executive councils, contained a total of 1,003 principals in designated areas in 1970, equivalent to 47 per cent of all principals in the four counties or 16 per cent of all designated doctors in England. Three main concentrations of heavily designated localities are seen within these counties: one corridor stretching our from London through Essex, another group around the Luton-Watford area, and a third in the Medway towns of Kent. All five executive councils had average lists above 2,500 in 1970, and the total shortfall of principals at the executive council level was 64. Relative to size, the greatest shortages were felt in Hertfordshire and Essex, but, as in the East Midland cluster, these rates fell far short of those in the West Midlands or the North-East.

The fourth cluster, Lancashire, consists of the administrative county and seventeen county boroughs, each representing a separate executive council. Together they contained 925 principals in designated areas in 1970: 46 per cent of all principals in the county and 14 per cent of all designated doctors in the country. Not surprisingly, the administrative county contained the majority of these GPs, followed by eleven towns or cities with fewer than 100 each. It is interesting that in 1970 seven boroughs contained no designated areas at all, whilst neighbouring towns, apparently of similar composition, had quite large concentrations. In Manchester, for example, 21 per cent of principals were in designated

areas and in the nearby towns of Bolton, Bury, Oldham and Rochdale the percentage was 100; yet in Salford, which virtually begins in the centre of Manchester, no areas were designated, and the second major Lancashire city (Liverpool) was also free of such areas. Twelve of the eighteen executive councils in the county had average lists above 2,500, and the total shortfall of principals at executive council level was 110. Standardised to population size, the greatest shortages were in Rochdale and St. Helens (among the highest anywhere in the country), Bury, Blackburn and Bolton.

The fifth cluster, the West Riding of Yorkshire, consists of the administrative county and eleven county boroughs, each representing a separate executive council. Together they contained 793 principals in designated areas in 1970, equivalent to 53 per cent of all principals in the county and 12 per cent of all designated doctors in the country. About two-fifths of these 793 GPs were practising in the administrative county, Sheffield contained 147 of them, and eight other towns or cities had fewer than 100 each. Only two boroughs, Dewsbury and York, had no designated areas at all, and these were also the only two with average lists below 2,500. The total shortfall of principals at executive council level was 62, and the highest rates of shortfall were experienced in Rotherham and, to a lesser degree, Sheffield, Bradford and Halifax.

The sixth cluster is made up of the geographical counties of Durham and Northumberland, and incorporated nine executive councils. They contained 571 principals in designated areas in 1970, exactly two-thirds of all principals in the two counties and just under a tenth of all the designated doctors in England. The county areas of Durham accounted for 211 of these GPs, Newcastle and Sunderland together accounted for a further 161, and the remainder were distributed through all the other executive councils except Gateshead. This latter borough, together

with Newcastle and Northumberland county, had an average list size below 2,500 in 1970; all the others had varying degrees of manpower shortage. The total shortfall of principals at the executive council level was 55, and the towns most affected, relative to size, were Hartlepool (with the highest average list size in the country), Darlington, Sunderland, Tynemouth and Durham.

These six clusters of counties contained between them more than three-quarters of all English-based principals in designated areas in 1970, and they represent those parts of the country which, on both measures of deprivation, were experiencing the most severe manpower difficulties. It should not be overlooked that many other counties also contained at least a few designated areas, some of them in seemingly unlikely places. Among areas which were designated in 1970 are: Maidenhead, Berkhamsted, Elstree, Potters Bar, Banbury, Highgate, Enfield, Bexley, Orpington, Tonbridge, Surbiton and Dover. Yet it remains generally true that the south was far less extensively designated than either the midlands or the north, for of the fourteen geographical counties in 1970 with fewer than 10 per cent of principals in designated areas only two (Herefordshire and Westmorland) lay to the north of the Wash-Severn line, and of the twenty-three counties with average lists below 2,500 only eight lay to the north. Counties with the greatest manpower problems were situated mainly around a line drawn from Kent to Lancashire, with an intensification in the midland counties and, away from the line, in the north-east. Counties to the west of a line from about Eastbourne to Chester had problems neither of depth nor of extensiveness (with the exception of Worcestershire), and the same can be said of East Anglia and most of the northernmost counties.

The concentration and persistence of designated areas

We conclude this chapter with a review of the evidence of the spatial and temporal persistence of designated areas. One possible form of spatial concentration is in large urban areas, and an indication was given in the previous chapter of the extent to which this was happening (table 4.3). By calculating for each geographical county the proportions of all principals and designated principals practising in the county boroughs it is possible to draw some very broad conclusions about the urban/rural distribution of designated areas across the country as a whole. The resulting picture is not completely accurate for in some cases the executive council statistics for a county borough could not be separated from its surrounding county (e.g. Nottingham, Oxford, Luton and Canterbury), and Greater London must for this purpose be treated as five county boroughs, corresponding with the five London executive councils. With these reservations in mind, the results show that in 1970, 51 per cent of all principals and 55 per cent of designated principals in England were practising within the county boroughs. The slight excess of designated doctors in the county boroughs is insufficiently great to support the conclusion that the problem of under-doctored areas is overwhelmingly one of the large towns and cities. However, the Greater London area has an important distorting effect, for if the figures are reworked to exclude the London executive councils, the remaining boroughs contained 48 per cent of the designated doctors but only 36 per cent of all principals.

Outside the capital, therefore, the under-doctored areas were more heavily concentrated in the large towns than would be expected on a purely random basis, and the annual reports of the Ministry of Health indicate that this has been the case at least since 1954. Of individual counties in 1970, Cumberland, Lincolnshire, Norfolk, Worcestershire and the East Riding had more than twice the expected proportion of

designated GPs in the boroughs, and the proportion was at least one-and-a-half times greater in Derbyshire, Gloucestershire, Northumberland and the North Riding. By contrast, the counties of Devonshire, Hampshire, Northamptonshire, Somerset, Suffolk and Sussex had no designated doctors at all in their county boroughs. In sum, the extent to which the under-doctored areas are concentrated in a predominantly urban environment depends not only upon the way in which an area is defined, but also upon the part of the country in question. Over the country as a whole doctors in designated areas are slightly over-represented in the county boroughs, but if London is excluded the tendency becomes much more marked.

Evidence for the persistence of under-doctored areas over time is of two kinds. On a long-term perspective, the situation in 1970 can be compared with the pre-NHS distribution of practitioners revealed in the 1944 PEP Broadsheet (Planning, 1944) which contained a map showing the location of doctors, by counties, in 1938. The overall impression is that the basic patterns have remained largely unaltered over the past thirty years. In 1938, as in 1970, there was a marked lack of doctors in the Midlands, Lancashire and Durham, with a relative abundance in the South, particularly the South-West. But in some detailed respects the emphasis has changed somewhat over this period. In 1938, for example, Warwickshire seemed to have a lower average list size than the other counties in the East and West Midlands, although it is difficult from the original map to make an accurate allowance for Birmingham. The northern home counties also seemed to be rather better off pre-war, for there is no sign in the 1938 map of the relative shortage of doctors which now besets north-east London and Hertfordshire, and to a lesser extent Bedfordshire, Buckinghamshire, and Essex. By contrast, it is clear that Sussex, like Westmorland, has never had any difficulty in attracting and retaining an adequate supply of family doctors. To this extent, at least, the National Health Service has not brought about any dramatic shift in the

location of GPs, and the apparent chronicity of the problem in many places suggests that easy or quick solutions are unlikely to be found.

The second kind of evidence is to be found in trends in individual executive councils since the inception of the NHS. The councils fall into three categories: those with persistent histories since 1954 of large lists (i.e. above 2,500), those which have never had large lists, and those which have sometimes experienced large lists. In the first category are the executive councils of Bedfordshire, Derbyshire, Durham, Essex, Lancashire, Lincolnshire, Staffordshire, Nottinghamshire, Warwickshire, Barnsley, Coventry, Dudley, St. Helens, Sunderland, West Bromwich, and Wolverhampton. Almost all of these councils had high proportions of doctors in designated areas and large shortfalls of practitioners in 1970, and most were in one of the six clusters of heavily under-doctored counties. Among the second category of councils (those which have never experienced large lists) are the executive councils of Cambridgeshire, Cornwall, Cumberland, Devon, Dorset, Gloucestershire, Hampshire, Herefordshire, Norfolk, Oxfordshire, Somerset, Suffolk, Surrey, Sussex, Westmorland and the North Riding of Yorkshire. Each of these counties had a surplus of family doctors in 1970 and most had no designated areas. Again, this suggests that places with few manpower problems in 1970 have generally been able to attract sufficient doctors to keep their average list sizes below the figure for the country as a whole. The third category of councils (those which have sometimes been short of doctors) is in many ways the most interesting for it shows how individual counties have fared in relation to national trends. In some cases the shortage is of quite recent origin and probably attributable more to the movement of population than to the movement of doctors. Berkshire, for example, did not appear in the list until 1964, and Hertfordshire, Leicestershire, Cheshire and Wiltshire were all absent until 1958. Other counties have a less consistent history, being in the list some

years and out of it in others. They include Huntingdonshire, South-West London, Northamptonshire, Middlesex and Worcestershire. Of the county boroughs, Gateshead, Great Yarmouth, Norwich, Southampton, Wigan, York and Birkenhead all had fairly large lists until about 1963 and then appeared to reduce them, whilst Burton, Dewsbury, Hartlepool, Tynemouth, Stoke, Walsall, Worcester, Blackburn, Oldham and Hull have only appeared in the list since that date.

In sum, we conclude from these analyses that the broad patterns of relative manpower shortage have not changed dramatically over the last twenty to thirty years. Areas which are currently facing the most serious shortages seem to have a fairly long history of manpower difficulties, whilst those which are today relatively well supplied with family doctors have generally had no difficulty in past years in attracting and keeping an adequate number of practitioners. This conclusion suggests that there is unlikely to be any easy or quick solution to the 'problem' of the unequal distribution of general practitioners.

Table 5.1 Mean list size as a ratio of the national mean (=100), by type of practice area, 1952-74 (England and Wales)

(Source: Annual Reports, Ministry of Health/DHSS, 1952-70; DHSS and Welsh Office Health and Personal Social Services Statistics, 1971-74)

Year	Ratio of average list size to national average, by type of area		
	Designated	Open/intermediate	Restricted
1952	117	90	65
1953	117	94	69
1954	120	97	67
1955	120	98	68
1956	119	98	68
1957	117	100	67
1958	116	99	69
1959	120	99	69
1960	119	99	70
1961	120	99	68
1962	119	100	70
1963	118	99	71
1964	117	100	74
1965	117	99	73
1966	116	98	74
1967	115	97	74
1968	114	97	73
1969	114	97	75
1970	113	97	77
1971	114	97	78
1972	115	98	80
1973	115	99	81
1974	116	99	82

Graph 5.2. Number of unrestricted principals, percentage of principals in designated areas, and national average list size, 1952-74 (England & Wales)

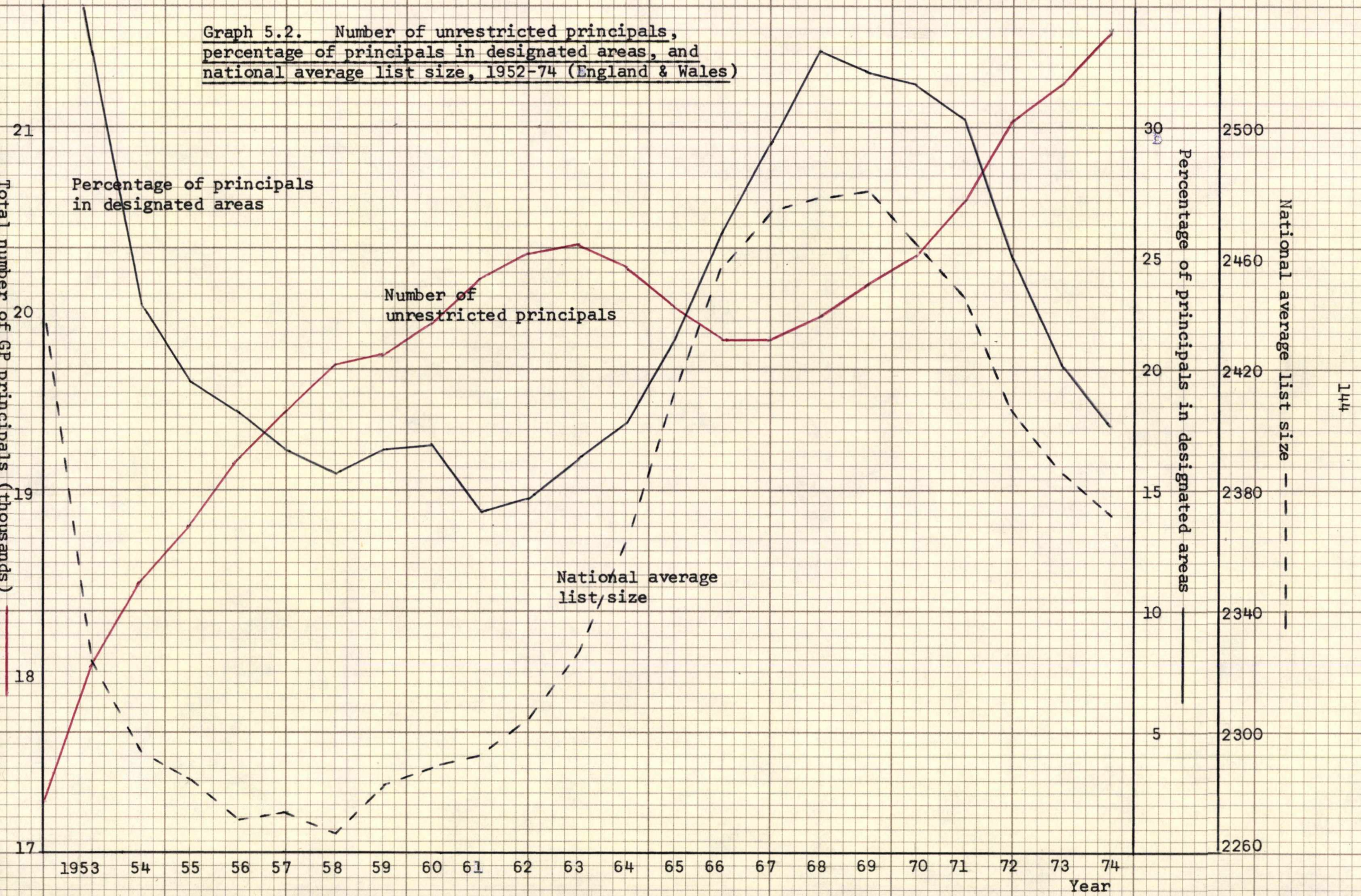

Table 5.3 Percentage of unrestricted principals in designated areas, and the shortfall/surplus of unrestricted principals, by standard regions and executive councils, at 1 October 1970 (England)

Standard region/ Executive council	Total number of principals	Principals in designated areas		Average no. of patients per principal	Shortfall (-) or surplus (+) of principals	
		no.	%		no.	Rate per 1m. patients
Northern region	1,315	750	57	2,528	-15	-4.5
Cumberland	99	-	-	2,200	+12	+55.1
Carlisle	32	32	100	2,571	-1	-12.2
Durham	296	211	71	2,735	-28	-34.6
Darlington	30	30	100	3,012	-6	-66.4
Gateshead	43	-	-	2,457	+1	+9.5
Hartlepool	31	31	100	3,175	-8	-81.3
South Shields	42	42	100	2,641	-2	-18.0
Sunderland	79	79	100	2,801	-9	-40.7
Northumberland	208	73	35	2,385	+10	+20.2
Newcastle-upon-Tyne	108	82	76	2,419	+4	+15.3
Tynemouth	23	23	100	2,672	-2	-32.5
Westmorland	40	-	-	1,771	+12	+169.4
Yorkshire N.Riding	137	10	7	2,082	+23	+80.6
Teesside	147	137	93	2,814	-18	-43.5
Yorkshire and Humberside region	1,919	950	50	2,549	-38	-7.8
Lincolnshire (Lindsey)	161	45	28	2,305	+13	+35.0
Grimsby	35	35	100	2,900	-6	-59.1
Yorkshire E.Riding	108	-	-	2,096	+17	+75.1
Kingston-upon-Hull	121	77	64	2,620	-6	-18.9
Yorkshire W.Riding	671	307	46	2,580	-21	-12.1
Barnsley	29	29	100	2,617	-1	-13.1
Bradford	121	56	46	2,636	-7	-21.9
Dewsbury	24	-	-	2,370	+1	+17.6
Doncaster	40	40	100	2,650	-2	-18.9
Halifax	35	35	100	2,638	-2	-21.7
Huddersfield	50	50	100	2,604	-2	-15.4

Table 5.3 contd.

Standard region/ Executive council	Total number of principals	Principals in designated areas		Average no. of patients per principal	Shortfall (-) or surplus (+) of principals	
		no.	%		no.	Rate per 1m. patients
Leeds	200	73	37	2,576	-6	-11.6
Rotherham	30	30	100	2,895	-5	-57.6
Sheffield	205	147	72	2,681	-15	-27.3
Wakefield	27	26	96	2,631	-1	-14.1
York	62	-	-	2,283	+5	+35.3
East Midland region	1,351	596	44	2,596	-52	-14.8
Derbyshire	261	103	39	2,577	-8	-11.9
Derby	88	87	99	2,658	-7	-29.6
Leicestershire	188	68	36	2,555	-4	- 8.3
Leicester	121	-	-	2,689	-9	-27.7
Lincolnshire (Holland)	41	22	54	2,493	-	-
Lincolnshire (Kesteven)	64	18	28	2,312	+5	+33.8
Lincoln	35	33	94	2,450	+1	+11.9
Northamptonshire	128	50	39	2,577	-4	-12.1
Northampton	57	-	-	2,547	-1	-6.9
Notts County and City	368	215	58	2,671	-25	-25.4
East Anglian region	702	118	17	2,336	+46	+28.0
Cambridgeshire	130	11	8	2,345	+8	+26.2
Huntingdonshire	73	28	38	2,544	-1	-5.4
Norfolk	183	-	-	2,244	+19	+46.3
Great Yarmouth	25	25	100	2,501	-	-
Norwich	57	-	-	2,300	+5	+38.1
Suffolk, East	110	-	-	2,142	+16	+67.9
Ipswich	54	54	100	2,628	-3	-21.1
Suffolk, West	70	-	-	2,393	+3	+17.9

Table 5.3 contd.

Standard region/ Executive council	Total number of principals	Principals in designated areas		Average no. of patients per principal	Shortfall (-) or surplus (+) of principals	
		no.	%		no.	Rate per 1m. patients
South-Eastern region	7,441	1,452	20	2,427	+217	+12.0
Bedfordshire and Luton	178	18	10	2,734	-17	-34.9
Berkshire	206	53	26	2,436	+5	+10.0
Reading	67	-	-	2,456	+1	+ 6.1
Buckinghamshire	227	84	37	2,572	-7	-12.0
Essex	439	183	42	2,606	-19	-16.6
Southend-on-Sea	68	44	65	2,582	-2	-11.4
Hampshire	408	53	13	2,363	+22	+22.8
Bournemouth	77	-	-	2,088	+13	+80.9
Portsmouth	87	-	-	2,343	+5	+24.5
Southampton	94	-	-	2,567	-3	-12.4
Hertfordshire	371	168	45	2,643	-21	-21.4
Isle of Wight	50	-	-	2,122	+8	+75.4
London, Inner	1,437	-	-	2,295	+118	+35.8
London, North-East	470	266	57	2,543	-8	-6.7
London, S.E. and Kent	772	342	44	2,544	-14	-7.1
London, S.W. and Surrey	860	145	17	2,388	+38	+18.5
Middlesex	906	81	9	2,454	+16	+ 7.2
Oxford County and City	160	15	9	2,270	+15	+41.3
Sussex, East	199	-	-	2,168	+26	+60.3
Brighton	86	-	-	2,189	+11	+58.4
Eastbourne	31	-	-	2,189	+4	+59.0
Hastings	31	-	-	2,428	+1	+13.3
Sussex, West	217	-	-	2,241	+23	+47.3
South-Western region	1,723	140	8	2,241	+179	+46.4
Cornwall	181	-	-	2,089	+26	+67.1
Devon, Exeter Torbay	317	-	-	2,038	+59	+91.3
Plymouth	106	-	-	2,323	+7	+28.4

Table 5.3 contd.

Standard region/ Executive council	Total number of principals	Principals in designated areas		Average no. of patients per principal	Shortfall (-) or surplus (+) of principals	
		no.	%		no.	Rate per 1m. patients
Dorset	160	-	-	2,197	+19	+54.1
Gloucester County and City	281	24	9	2,292	+23	+35.7
Bristol	186	64	34	2,408	+7	+15.6
Isles of Scilly	2	-	-	1,026	+1	+487.6
Somerset	261	7	3	2,244	+27	+46.1
Bath	41	-	-	2,304	+3	+31.8
Wiltshire	188	45	24	2,477	+2	+ 4.3
West Midland region	2,004	1,332	66	2,608	-87	-16.6
Herefordshire	64	-	-	2,111	+10	+74.0
Salop	150	20	13	2,286	+13	+37.9
Staffordshire	248	163	66	2,682	-18	-27.1
Burton-on-Trent	24	24	100	2,758	-2	-30.2
Stoke-on-Trent	104	104	100	2,798	-12	-41.3
Walsall	67	67	100	2,980	-13	-65.1
Warley	74	73	99	2,506	-	-
West Bromwich	61	61	100	2,800	-7	-41.0
Wolverhampton	100	100	100	2,794	-12	-43.0
Warwickshire	269	149	55	2,603	-11	-15.7
Birmingham	443	325	73	2,579	-14	-12.3
Coventry	132	132	100	2,728	-12	-33.3
Worcestershire	174	20	11	2,406	+7	+16.7
Dudley	61	61	100	2,954	-11	-61.0
Worcester	33	33	100	2,709	-3	-33.6
North-Western region	2,644	1,101	42	2,578	-83	-12.2
Cheshire	417	114	27	2,484	+3	+2.9
Birkenhead	60	-	-	2,483	+1	+6.7
Chester	37	-	-	2,547	-1	-10.6
Stockport	62	62	100	2,512	-	-
Wallasey	45	-	-	2,360	+3	+28.3
Lancashire	853	509	60	2,698	-67	-29.1

Table 5.3 contd.

Standard region/ Executive council	Total number of principals	Principals in designated areas		Average no. of patients per principal	Shortfall (-) or surplus (+) of principals	
		no.	%		no.	Rate per 1m. patients
North-Western region						
Barrow-in-Furness	27	-	-	2,513	-	-
Blackburn	41	41	100	2,867	-6	-51.0
Blackpool	68	-	-	2,356	+4	+25.0
Bolton	62	62	100	2,831	-8	-45.6
Bootle	32	32	100	2,671	-2	-23.4
Burnley	38	-	-	2,319	+3	+34.0
Bury	25	25	100	2,883	-4	-55.5
Liverpool	279	1	-	2,465	+4	+ 5.8
Manchester	246	51	21	2,475	+3	+ 4.9
Oldham	48	48	100	2,736	-5	-38.1
Preston	52	50	96	2,557	-1	- 7.5
Rochdale	32	32	100	2,939	-6	-63.8
St. Helens	41	41	100	3,016	-8	-64.7
Salford	69	-	-	2,237	+7	+45.3
Southport	39	-	-	2,322	+3	+33.1
Warrington	38	-	-	2,576	-1	-10.2
Wigan	33	33	100	2,622	-2	-23.1
Total, England	19,099	6,439	34	2,478	+168	+3.6

Table 5.4 Percentage of unrestricted principals in designated areas, by standard region, 1967-72 (England)

(Source: Annual Reports, DHSS, and unpublished statistical tables)

Standard region	Percentage of principals in designated areas					
	1967	1968	1969	1970	1971	1972
North	42	55	53	57	50	45
Yorkshire/ Humberside	39	46	48	50	46	40
East Midlands	43	59	57	44	47	51
East Anglia	5	8	5	17	16	15
South-East	21	24	21	20	20	13
South-West	2	7	7	8	6	4
West Midlands	56	65	65	66	56	41
North West	31	39	42	42	42	34
England, Total	29	35	34	34	32	26

SECTION TWO

A SURVEY OF GENERAL PRACTITIONERS IN ENGLAND

CHAPTER SIX

A SURVEY OF GENERAL PRACTITIONERS

The first section of this thesis has attempted to provide a general view of the extent, causes and remedies of the problem of the geographical maldistribution of primary medical manpower. The section first reviewed the literature on a cross-national basis, and then examined more closely the post-war trends in GP distribution in England, and the development of policies designed to improve the distribution. Using official data aggregated by practice areas, geographical counties and standard regions, the recent trends in the location of GP principals were mapped, and judgements were offered about the effect of current policies upon them. The object of this section is to move beyond the level of information contained in the official statistics to a deeper and more qualitative analysis of the motives, perceptions and career patterns of individual doctors. In brief, the section reports the results of a postal survey conducted in 1969-70 among a sample of family doctors in England.

The survey originated, as the Introduction relates, with a grant from the Department of Health and Social Security to study the effect of financial incentives on the location of GPs in England. It was intended that part of the study should take the form of a modest survey of GPs to identify the self-reported reasons for locational decisions, and to assess the relative salience of financial incentives among the complex bundle of elements determining the choice of a practice location. Initially, therefore, the survey fell centrally within the type of study identified in chapter 1 as dealing primarily with motivational explanations. It addressed the questions: What factors determine the choice of practice location?; what is the role of financial incentives among those factors?

The survey never lost this aspect, but as the background work on the study developed it became clear that, with a sufficiently large sample, the

opportunity could be taken of extending its scope in two relevant directions. First, the survey could yield original data about the patterns of geographical mobility among general practitioners. Changes over time in the doctor-patient ratios of areas may result from one, or a combination, of several different processes. One process may be that of the geographical movement of doctors from area to area. Because of the cross-sectional nature of the official statistics of manpower location (see chapter 4), the extent and composition of GP mobility patterns is entirely unrecorded. It is not known even how many moves a family doctor typically makes during his career, much less the gross and net redistributive effects of those moves or the relationship between internal migration and the immigration of doctors from abroad. A second process affecting the net geographical redistribution of manpower is the discrepancy between losses from and replacements to the profession. It was noted in chapter 1 that the relocation of physicians in America has resulted more from the failure to achieve a full replacement of physicians leaving practice in rural areas than from a physical movement of manpower from the countryside to the cities (Mountain, et al, 1942b; Steele and Rimlinger, 1965). The English statistics fail to reveal the extent to which a similar discrepancy between losses and gains has contributed to redistributional trends over time. A third process in locational trends is that of population movements: changes in the doctor-patient ratios of areas may in theory result as much from the movement of population as the movement of the medical profession. Data on population movements are available from the national census, but they are difficult to use for this purpose unless they can be set against information on the movements of doctors.

The lack of information about the patterns of geographical mobility among GPs is felt at two levels. At an academic level, an important professional process may be taking place of which we are largely ignorant.

Few previous studies have been made of the movement of family doctors, none of them at the national level; yet the mobility of an important section of the medical profession is of interest to those concerned with professional processes. At a policy level, the failure to distinguish the different components of redistributional trends through time has led inevitably to non-selective policies for manpower recruitment in all areas, whatever their particular deficiencies may be. It was, therefore, of direct relevance to the applied purposes of the study, as well as a matter of academic interest, that the scope of the survey should extend beyond its initial remit to include the collection of data about the geographical mobility of the sample.

The second area into which it was felt the survey could usefully extend was that of the perceptions held by the survey respondents about the professional and social characteristics of their practice areas. The point was made in chapter 4 that, because the boundaries of the medical practice areas fail to correspond systematically with other units for which socio-economic data are regularly gathered, no analyses of an ecological type can be performed on them. In the absence of such evidence, the assertion has frequently been made that, in comparison with other practice areas, the designated areas are unlovely and therefore unattractive to most doctors, who, like other professional people, are assumed to prefer a rich, middle-class community in which to live and work (BMJ, 1967d). Quite apart from the tautological error of arguing that the designated areas are unattractive to doctors because they fail to attract enough doctors, the assumption that they must possess characteristics which are uncongenial to family doctors may also be challenged. The perception of the characteristics may be erroneous or distorted by those who are not actually living in these areas, and there may also be an 'acquired taste' about the designated areas that must be savoured through a period of sojourning in order to be appreciated. Indeed, there is

some evidence that most people do develop positive sentiments towards their localities after residing in them for a period of time (Royal Commission, 1969). To the extent that this is as true for family doctors as for the general population, the potentiality for change is better than has often been assumed, and may be considerably enhanced if it can be shown that practice conditions and facilities are at least as good in areas of high as of low average list sizes. In order to provide information on these matters, therefore, the scope of the survey was further extended to include the perceptions of the respondents about their practice areas and a description of their practice conditions and facilities.

The three main objectives of the survey (the description of geographical mobility patterns, the recording of self-reported reasons for location choice, and the gathering of perceptual information about the social and professional variations between practice areas) could only be fulfilled through an original survey. Although general practice must be among the most extensively surveyed of British professions, very little relevant data existed before the survey. Most surveys have been local rather than national, and none of the nation-wide surveys has elicited mobility patterns and motivations in the detail required by the study. Post-war surveys of general practice include the classic studies in the 1950s by Collings (1950), Taylor (1954) and Hadfield (1953); Hill's (1951) nation-wide survey; Benjamin and Ash (1964) on prescribing habits; the survey commissioned by the Royal Commission on Doctors' and Dentists' remuneration (1960); Cartwright's two surveys in 1963 and 1964 (Cartwright and Marshall 1965; Cartwright, 1967); Bevan and Draper's large nation-wide survey of appointments' systems (Bevan and Draper, 1967); Last's extensive postal surveys among a 10 per cent sample of GPs and consultants in 1966 (Last, 1967; Last and Broadie, 1970); Mechanic's survey of English GPs in 1966 (Mechanic, 1970); and the 1969 survey by the BMA Planning Unit (Irvine and Jeffreys, 1971).

All of these studies were nationally based, though with very small samples, and few included questions pertinent to the current investigation. Cartwright's data can be analysed by type of practice areas, but her schedule contained no questions relating specifically to the choice of practice area. Last's surveys of regional patterns of settlement of doctors in relation to their home areas and medical school are more closely related to the objectives of this study than any other British study, but relatively few questions were asked and the results are scanty. Of the local investigations, the most important is that of Brown and Walker in three areas based on Hull, Cardiff and Southampton, and material from this research is quoted in later chapters (Brown and Walker, 1971; 1973). An extensive literature exists on mobility patterns in general populations (Beshers, 1967; Donnison, 1961), but it was clear from an early stage that the information needed for this particular research could be obtained only through a specially mounted survey. This chapter describes the main features of the survey design.

The sample

Various factors influenced the definition of the population and the size of the sample, including the desirability that it be widely distributed over the country, the need for an adequate number of doctors in each region and class of area, the availability of a central national sampling frame, and the possibility (not finally confirmed at the time of drawing the sample) that the survey might be conducted through the post. With these considerations in mind, the population was defined as all unrestricted principals in England, and the sample was drawn in such a way that it would be suitable either for a postal survey, or, in reduced form, for an interview survey. Wales was excluded because its small number of designated areas (only 5 in 1968 , when the research was being planned) would have yielded a low pay-off in relation to the extra cost and

complexity of extending the research there. Likewise, Scotland had only 18 designated districts in mid-1968, and has the added difficulty of an entirely separate system of administration, finance and record-keeping. The population varies in time, and the precise point in time at which the population was formally sampled was determined by the properties of the list from which the sample was drawn. The actual sample at the time of the fieldwork was further affected by changes in the population between the compilation of the sampling frame and the carrying out of the survey.

The sampling frame was the relevant section of the Doctor Index, held on punched cards by the Department of Health and Social Security. The Index at the time of sampling (December 1968) related to the population at 1st October, 1967. The revised Index for 1968 was available in April 1969, when changes in addresses or deletions due to deaths or retirements were made to the sample. At this stage the population from which the sample was drawn was the total number of unrestricted principals at 1st October, 1967 who were also giving the same services at 1st October, 1968. This meant that no doctor entering general practice after 1st October, 1967 was included in the sample. The mailing of the questionnaires for the survey took place between November 1969 and February 1970, by which time the relevant population of doctors already in contract with the National Health Service as at 1st October, 1967 was further depleted. Many of these losses, due to death, retirement or resignation, only came to light when the questionnaires were returned by the GPO.

The population was stratified by standard region and type of practice area (that is, whether designated or non-designated). The original sampling goal was a target of 2,000 doctors using a systematic one-in-eight sampling fraction in the designated areas in each region and a one-in-ten fraction in the non-designated areas. This procedure, however, would have led to very small numbers (probably below 10) of doctors from

designated areas in two regions (East Anglia and South-West) and relatively small numbers of doctors from non-designated areas in four regions (North, East Midland, East Anglia and West Midland). Accordingly, the relevant sampling fractions were increased to include all doctors in designated areas in East Anglia and the South-West, and a minimum of 100 doctors from non-designated areas in all other regions. Strictly speaking, therefore, the sampling fractions were not quite uniform within the designated and non-designated strata over the regions, but in view of the small numbers involved, the analysis assumes uniform regional sampling fractions within each stratum. At this stage the sample amounted to 2,360 GPs, and it was reduced to 2,266 after up-dating to October 1968. The pilot survey consumed a further 100 doctors, and subsequent reductions due to death, retirement, etc. resulted in a final sample size of 2,031, of whom 816 were in designated areas and 1,215 in non-designated areas.

Table 6.1 compares the distribution of general practitioners in the sample with that for all principals in England and Wales at 1st October, 1968 in terms of area classification, sex, age, type of practice, and list size. The two distributions are not strictly comparable: the population data relate to principals in all areas in England and Wales, whereas the sample data cover GPs in England only, and are sub-divided among those in designated and non-designated areas. Nevertheless, the comparison clearly confirms that in most major respects the sample was entirely adequate with respect to the characteristics under consideration.

The pilot and main surveys

A small pilot survey was carried out in the summer of 1969 to test the adequacy of the questionnaire and to assess the merits of alternative methods of data collection. At the outset of the project two methods seemed feasible for the main survey: an interview survey conducted by

the regional medical officers (RMOs), or a postal survey. Both methods were used in the pilot survey and the results contrasted for differences in response rates and in the content of responses. One batch of fifty-three GPs received a postal questionnaire directly from the University of Kent and a second batch of forty-seven doctors was interviewed by RMOs in the Western, Southern and Eastern divisions.* The first batch yielded a response rate of 60 per cent without any follow-ups, and it was estimated that two follow-ups would have raised the final total to about 80 per cent. In the second batch the overall response was 84 per cent, and because of the large variations in response between the three divisions (ranging from 71 to 95 per cent) it was felt that the diligence of individual RMOs was possibly a critical factor. In both cases the response rates were similar for doctors in designated and non-designated areas, but a higher proportion of replies came from male doctors and from those with higher qualifications and larger lists. In view of the desirability of including as many doctors as possible it was decided that a postal survey would be the appropriate research tool in the main phase, but since the involvement of the regional medical officers appeared to increase the motivation to respond it was also decided that the survey should be sponsored by the divisional medical offices.

The first mailing consisted of a questionnaire, a covering letter signed personally by the appropriate regional medical officer, and a stamped reply envelope (Appendix B). These materials were sent out in Official Paid HMSO envelopes, with the Department's name printed in the lower corner. It was hoped that an official envelope from the DHSS would be less likely to be mislaid, unopened or thrown away than any other kind of letter, and in fact the replies to the two subsequent follow-ups indicated that probably no more than a dozen of the original mailings had failed to reach their intended recipients.

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* The divisions referred to throughout this chapter are the DHSS divisions within which the general medical services are administered. They do not correspond with any other geographical unit used in this study, and were used in the survey solely for administrative convenience.

The questionnaire, which was constructed on the basis of the pilot replies, was a seven-page foolscap document, reproduced by offset-litho. The address of the University was added to the end of the questionnaire in case respondents lost the reply envelopes, but only half a dozen questionnaires were returned in envelopes other than those provided. Serial identification numbers were stamped prominently on the front and back of the questionnaires so that respondents were fully aware that their particular questionnaires could be individually identified. A postal survey must include a way of identifying completed questionnaires, but opinions differ about the desirability of making the serial numbers prominently visible. In this case the view was taken that the promise of confidentiality (as opposed to anonymity) was an adequate safeguard for the doctors, and that consequently nothing of a surreptitious or secret nature should be done. In fact only one of the 1,721 doctors returning a questionnaire had obliterated the serial number, although it may of course be the case that a larger number of doctors would have responded if the questionnaires had not contained any obvious marking system.

The covering letter in the first mailing was based on the conclusion of the pilot study that the letter should be seen to come from the DHSS divisional offices, should be on divisional notepaper, and should be personally signed by the regional medical officers. Supplies of headed notepaper were obtained from each of the six divisions, and the letters were then produced in Canterbury and returned to the divisional offices for the RMOs' signatures. The method of production was by offset litho, but the names and addresses of the doctors were typed individually at the head of the letters and the salutation used was 'Dear Dr. Smith'. Each letter was signed personally by the appropriate RMO. The content of the letter stressed the support which the divisional offices gave to the survey, and mentioned the designated areas allowance as one of the reasons behind the study. The role of the University in

designing the survey and processing the data was explained, and a guarantee of confidentiality was given. The letter invited questions and comments about the survey, and some notes had been prepared for the guidance of RMOs in answering questions, but very few doctors are known to have accepted the invitation.

The first mailing was sent out by divisions as each division was ready. The first divisions, the Southern and the North-Eastern, were sent out on 5th November, 1969 and the last, the North-Western division was sent on 29th November. The failure to mail all the letters on the same date may have had a slight effect upon the response rate, for it meant that doctors in the later divisions were receiving their questionnaires at the beginning of an influenza outbreak in December.

Doctors who had not replied within about two weeks of the first mailing received a follow-up letter (Appendix B). The letter was duplicated, with individual names and addresses typed at the head, and it was sent on University paper and signed by the researcher. The letter pointed out that no questionnaire had yet been received, and stressed once again the importance of achieving a high response rate. A further reassurance was given about the confidentiality with which replies would be treated. These first follow-ups were sent on various dates between 19th November and 15th December. By the time the letters were sent to the later divisions, the influenza epidemic was well under way, and the postal service was congested with Christmas mail. Both events may have affected the response in a slight way, for the response rate at this stage was highest among the divisions which were mailed first and lowest for the last division (North-West)

By the time the replies to the second mailing had ceased, the overall response rate was just under 80 per cent and a decision was required about

the value of a second reminder. The second follow-up, if it is used, is generally considered to bring in about a quarter of the remaining replies in a postal survey (Scott, 1961), and on this basis a final rate of 85 per cent could have been expected in this survey. Of the more recent postal surveys among a national sample of GPs, Cartwright (1967) and Last (1967) both employed a second follow-up, and Mechanic (1970) sent no less than four follow-ups, but no details are given of their impact on the overall response. From the available evidence it seemed probable that a second follow-up would be worth the extra time and money, but in order to get more information in the context of this particular survey a trial follow-up was made in the division which at that stage had the lowest response rate (North-West).

The third mailing in this one division was made on 22nd January, and consisted of a covering letter (Appendix B), a new questionnaire, and a further reply envelope. A new questionnaire was sent because it was felt that, even if doctors were motivated to reply, many would probably have lost their original ones. As with the first mailing, the serial numbers were stamped prominently in the top right-hand corner. The covering letter was again duplicated on University notepaper and signed by the researcher, and it acknowledged the possibility of questionnaires having been mislaid in the rush of coping with the (then) recent influenza outbreak. Within two weeks of sending the third mailing to the North-Western division the response had increased by 7 per cent overall, or by 30 per cent of the remainder. This result exceeded the expected response, and provided a justification for extending the third mailing to the remaining divisions. They were sent during the second week of February, and consisted of the same covering letter that had been used in the North-West, another questionnaire, and a further reply envelope.

Response rates

The full response rates are set out in table 6.2. Of the 2,166 doctors in the sample at the beinning of the survey, 135 were removed from the sample denominator as their circumstances were revealed during the survey. Twenty had died, 83 had retired or resigned from general practice, one had been struck off the medical list, and in a further 24 cases the letters were returned by the GPO because the doctors were not known or could not be traced. In addition, 8 doctors were removed from the sample denominator for reasons which meant that they were not actually practising as NHS principals at the time of the survey: 5 were in long-term hospital care and incapable of completing the questionnaire, and 3 were abroad. Summing these four categories, 135 doctors were, for the purposes of calculating response rates, considered to be outside the population because they were not practising at the time of the survey.

Of the total of 2,031 eligible respondents, almost two-thirds (64 per cent) replied to the first mailing, which is to say that they had returned their completed questionnaires within about two weeks of the mailing. This initial response was high by the standards of other reported postal surveys and was about the figure expected on the basis of the pilot survey. The rate was somewhat lower in the Eastern and North-Western divisions than in the others. In the latter case the reason may be the coincidence of the first mailing with the beginning of the influenza outbreak; in the former case the deficit is accounted for almost entirely by the very low response from doctors in the London area.

The second mailing yielded a further 15 per cent of the total sample, or just over two-fifths of what was left. There was some slight variation between the divisions in the response to this first follow-up.

It was lowest in the North-West (probably as a result of the closeness of Christmas), where the mailing yielded only 13 per cent of the total or a third of the remainder, and highest in the North-East (which had also had the highest response to the first mailing) where the respective figures were 17 per cent and 53 per cent.

The third mailing had less effect nationally than the trial in the North-West had predicted. It yielded a further 6 per cent of the total sample, or just over a quarter of what was left. Again there were some slight variations between the divisions, with the North-East and the North-West netting a higher proportion of outstanding replies than the other Divisions. In the case of the North-East this seems to reflect the greater readiness of doctors to reply at all stages of the survey, and in the North-West the higher rate merely had the effect of bringing the overall response of the division into line with the others.

The final response rates are shown in the last column of table 6.2. The overall rate is 84.7 per cent (or 83.5 per cent if the denominator is expanded to include the 32 doctors who either could not be traced or who were not actually practising as NHS principals at the time of the survey). Table 6.3 shows the breakdown of responses by executive councils. Of the 112 ECs represented in the sample, 21 had a response rate of less than 80 per cent, but 13 of these contained fewer than ten doctors in the denominator and cannot therefore be considered as significant. Of the larger executive councils the response was particularly low in Inner London (68.3 per cent), Liverpool (71.4 per cent), Walsall (73.3 per cent), Warwickshire (74.1 per cent) and Birmingham (75.4 per cent). Manchester, Nottinghamshire and N.E. London were other large ECs with a lower than average response rate. Thirty councils had response rates of 100 per cent.

The last column of table 6.3 expresses the completed replies as a percentage of all principals in each executive council at 1st October 1968, which is the date to which the sample was corrected. Overall, almost one in every ten principals in England was represented in the survey, but the figure varied quite considerably between different Executive Councils, from 2.5 per cent in Blackburn to 34.8 per cent in Huntingdonshire. Much of this variation was the result of fairly small numbers in many ECs, but the sampling design allocated a variable proportion of doctors in individual executive councils as eligible for inclusion in the survey, and the differential response rates further increased the disparities.

In general it seems that response rates were higher in rural than in urban areas, and lowest in the large cities and conurbations of the country - London, Birmingham, Manchester, Liverpool. Proximity to London does not appear to be a factor in response, although the rate for Inner London itself is significantly low. It is probable that personal and professional characteristics rather than geographical location are important in determining who does and who does not respond. The pilot survey obtained a better response from younger and from better-qualified doctors, and Cartwright (1967) found that 'the response was comparatively higher among more recently and better-qualified doctors, and among those working in partnerships of four or more doctors'.

Sufficient information about the doctors was made available from the sampling frame to allow quite detailed comparisons between respondents and non-respondents in the survey. Five points of comparison are used (classification of practice area, sex, age, list size and number of principals in the practice). No comparative information is available for the less tangible aspects of quality of practice; indeed, there are hardly any indicators that could be applied to non-respondents.

Cartwright (1967) obtained a higher response from members of the College of General Practitioners than from non-members, and also from doctors with post-graduate qualifications than from those with graduate or licentiate qualifications only. This suggests that the 'better' doctors (at least in terms of qualifications) may be relatively over-represented among respondents in postal surveys, but there is no comparable data from this study.

Table 6.4 sets out the variations in response on each of the five points of comparison. Because of the differential sampling fraction in designated and non-designated areas the results are presented separately for the two classes of practice area. The most striking conclusion from this table is the smallness of the variations in response, and in fact there were no statistically significant differences on any of the five variables between the actual frequencies and the frequencies that would be expected if each variable had no effect upon the probability of response ($p < 0.05$ in each case). It can be said with some confidence that the doctors who returned their completed questionnaires were a satisfactory cross-section of all the doctors originally drawn in the sample.

It is clear from the table, however, that respondents were under-represented at the extremes of some of the variables, most often where the sampling frequencies were low. For example, female doctors in designated areas were under-represented among respondents, and so too were elderly doctors and doctors with small list sizes in both designated and non-designated areas. With the exception of the female doctors in the designated areas, the characteristics of non-response (elderly, single-handed and with a small list size) tended to be associated with each other. Thus among the non-respondents, 56 per cent of doctors over 65 were in single-handed practice and 27 per cent had list sizes of less than 1,600,

compared with proportions of 31 per cent and 11 per cent respectively among the under 65s. Although these extremes become insignificant when set against the full range of the variables, they are important when results are considered which relate specifically to them. It may, for instance, be desirable to look in some detail at the interesting group of doctors in designated areas who have fewer than 2,000 patients on their lists, but it must be remembered that the non-response bias is greatest among these extreme categories.

Coding and punching

The information from the questionnaires was coded onto IBM instruction sheets by a team of housewives, working part-time at home, who had already gained experience on other surveys. Each questionnaire was coded independently by two different coders, and double checks were made on the consistency of the two sets of codes. The chief difficulties at this stage arose over the handling of unedited data. For reasons of time and cost it was decided to omit the editing stage and to pass the questionnaires for coding exactly as they were returned by the doctors. This meant that coders were often presented with material that was incomplete, ambiguous, inconsistent and often illegible, and in each case a decision was needed about handling it. The rule was therefore established that such queries were to be referred back to the researcher, and all new decisions were immediately communicated to the coding team.

The total number of detected coding errors and discrepancies was at a rate of 0.6 errors per questionnaire or approximately 8 per 1,000 coding decisions. An error rate of this magnitude is well within the accepted limits of tolerance, and many of the recorded discrepancies were differences of opinion rather than outright errors. It is thus possible that the error rate in the strict sense was in fact lower than this.

Against this, several hitherto undetected errors were discovered at the stage of data cleaning, and in addition all survey data inevitably contain a small proportion of undetected coding errors.

The data were punched onto 80-column cards, verified by machine, and cleaned on a counter-sorter. Cleaning involved checking that all codes were within the specified range for each variable and that all internal consistencies held good. Data were then transferred to tape for computer analysis using the Bangor survey programme.

The follow-up survey

A postal survey has certain strengths and weaknesses in comparison with other types of surveys. If the problem of low response can be overcome (which is the chief disadvantage of the method) a postal survey is usually much cheaper than any other form of data collection, but it has the added drawback of being limited mainly to simple factual questions. A mail questionnaire is not good at tapping opinions or attitudes, and complex questions requiring long written answers are best omitted. Much of the information needed in this study was of a type that could properly be collected through a postal survey, but also it seemed useful to supplement the responses with less structured material for illustrative purposes. To this end a small follow-up survey was mounted in September 1970 in which semi-structured interviews were conducted with thirty of the original respondents and, where possible, with their wives also. These doctors were practising in areas of the country with very diverse manpower situations, and all had moved either from a designated to a non-designated area or vice versa. The interviews were tape-recorded and some of the material from them is presented in chapter 14.

Presentation of the survey data

The fact that the research design effectively yielded two samples (one of doctors in designated areas and the other of those in non-designated areas) means that the results obtained from the two samples cannot be aggregated to give representative results for the country as a whole. In most of the subsequent tables, the results are presented separately for the designated and non-designated samples. Where estimates are required for the total population of doctors (as for example in chapter 8), they are obtained by weighting the designated and non-designated samples to take account of the differential sampling fractions. It should be noted in this context that the non-designated sample includes all doctors who, at the time of the survey, were practising in open, intermediate or restricted areas, although in many tables the results are listed separately for each individual type of area.

In most cases the figures presented in the tables are the raw sample frequencies, without adjustment for non-response and without inflation to population estimates. The decision to leave the sample frequencies unadjusted for non-response was based upon the fact that, as far as could be ascertained, the respondents were an acceptably representative sample of all doctors approached (table 6.4), and consequently the failure to achieve a 100 per cent response merely affected the size of the sample and not its representativeness with respect to the population of GPs. Population estimates are rarely given because in most tables the primary interest lies in contrasting the proportions of doctors in various categories possessing a relevant characteristic, but sample frequencies can quite easily be inflated. As a guideline, if 200 respondents in the designated sample had a certain attribute, then there is a 95 per cent chance that between 1,700 and 2,120 GPs in designated areas throughout England also possessed that attribute in 1968. For a designated sample frequency of 400 the population range lies between 3,590 and 4,050; and

for a frequency of 600 the range is 5,570-5,880. Population ranges at 95 per cent confidence for sample frequencies in the non-designated sample are: for 300, 3,210-3,860; for 600, 6,720-7,420; and for 900, 10,360-10,840. The standard error of the percentage, with finite population correction, is calculated as:

$$\sqrt{\frac{pq}{n}\quad\frac{N-n}{N}}$$

where N and n are respectively the population and sample sizes; p is the percentage of the sample possessing the characteristic in question; and q = (100 - p). These limits are probably conservative as they assume simple random sampling, whereas the actual sampling scheme was systematic random with stratification by regions.

Lastly, significance tests are rarely given in the text or by the tables. The main reason for this is that significance tests in common use relate to an individual characteristic of a table or a result, whereas arguments in a research report of this kind tend to be based on a complex of results. In such cases it is more important to observe and explain a set of results which are consistent with the argument than to dwell on the significance of individual results to the exclusion of others in the complex.

Table 6.1 Comparison of characteristics of doctors selected in the survey sample and of all principals in England and Wales (1 October 1968)

	Principals in England and Wales 1968		Sample			
			Designated areas		Non-designated areas	
	no.	%	no.	%	no.	%
Classification of area						
Designated	6,656	33.3	816			
Open	7,983	40.0			736	
Intermediate	3,301	16.5			304	
Restricted	2,030	10.2			175	
Sex						
Male	18,005	90.4	764	93.6	1,097	90.3
Female	1,918	9.6	52	6.4	118	9.7
Age						
under 30	626	3.1	7	0.9	12	1.0
30-34	2,059	10.3	58	7.1	89	7.3
35-39	2,778	13.9	126	15.4	128	10.5
40-44	3,530	17.7	166	20.3	224	18.4
45-49	3,133	15.7	139	17.0	210	17.2
50-54	2,762	13.9	125	15.3	173	14.2
55-59	2,075	10.4	87	10.7	175	14.4
60-64	1,558	7.8	57	7.0	100	8.2
65+	1,402	7.2	51	6.3	104	8.8
Type of practice						
Single-handed	4,501	22.6	147	18.0	296	24.4
In partnership	15,422	77.4	669	92.0	919	75.6
List size						
Under 1,600	2,067	10.4	34	4.2	150	12.3
1,600-2,499*	8,069	40.4	191	23.4	647	53.3
2,500 and over	9,834	49.2	591	72.4	418	34.4
Average list size in designated areas	2,819		2,864			

* Cut-off point is 2,599 in sample

Table 6.2 Response rates in the main survey, by division

Division	Total no. in sample	Removed from sample	Sample denominator	Response rates: First mailing		Second mailing			Third mailing			Total	
				no.	%	no.	% of total	% of remainder	no.	% of total	% of remainder	no.	%
WESTERN	442	32	410	274	66.8	61	14.9	44.9	17	4.1	22.7	352	85.9
EAST MIDLAND	280	21	259	168	64.9	37	14.3	40.7	13	5.0	24.1	218	84.2
NORTH EASTERN	311	18	293	196	66.9	51	17.4	52.6	15	5.1	32.6	262	89.4
EASTERN	456	31	425	253	59.5	65	15.3	37.8	25	5.9	23.4	343	80.7
SOUTHERN	382	18	364	234	64.3	62	17.0	47.7	17	4.7	25.0	313	86.0
NORTH WESTERN	295	15	280	174	61.9	35	12.5	33.0	24	8.6	33.8	233	83.2
TOTAL	2,166	135	2,031	1,299	64.0	311	15.3	42.5	111	5.5	26.4	1,721	84.7

Table 6.3 Response rates in the main survey, by executive councils

Executive council	Sample denominator	Response rate Number	Response rate Percentage	Total no. of principals 1968	Replies as % of total principals
Bedfordshire	15	12	80.0	169	7.1
Berkshire	25	21	84.0	195	10.8
Reading	1	-	-	64	-
Buckinghamshire	18	17	94.4	217	7.8
Cambridgeshire	28	25	89.3	129	19.4
Cheshire	41	37	90.2	391	9.5
Chester	4	4	100.0	36	11.1
Birkenhead	5	4	80.0	62	6.5
Stockport	6	5	83.3	65	7.7
Wallasey	3	3	100.0	44	6.8
Cornwall	19	17	89.5	182	9.3
Cumberland	15	13	86.7	104	12.5
Carlisle	3	3	100.0	30	10.0
Derbyshire	36	30	83.3	251	12.0
Derby	6	6	100.0	91	6.6
Devon	42	40	95.2	315	12.7
Plymouth	10	9	90.0	100	9.0
Dorset	12	10	83.3	159	6.3
Durham	43	39	90.7	295	13.2
Darlington	2	2	100.0	31	6.5
Gateshead	11	9	81.8	42	21.4
Hartlepool	3	2	66.7	34	5.9
South Shields	8	7	87.5	41	17.1
Sunderland	13	11	84.6	78	14.1
Essex	38	34	89.5	427	8.0
Southend	7	7	100.0	68	10.3
Gloucestershire	21	16	76.2	274	5.8
Bristol	21	21	100.0	187	11.2
Hampshire	41	38	92.7	431	8.8
Bournemouth	8	5	62.5	74	6.8
Portsmouth	13	11	84.6	88	12.5;
Southampton	12	11	91.7	90	12.2
Herefordshire	14	14	100.0	64	21.9
Hertfordshire	34	29	85.3	358	8.1
Huntingdonshire	27	25	92.6	69	36.2

Table 6.3 contd.

Executive council	Sample denominator	Response rate: Number	Response rate: Percentage	Total no.of principals 1968	Replies as % of total principals
Lancashire	81	67	82.7	818	8.2
Barrow	2	2	100.0	26	7.7
Blackburn	3	1	33.3	40	2.5
Blackpool	4	4	100.0	70	5.7
Bolton	9	9	100.0	66	7.3
Bootle	3	3	100.0	34	8.8
Burnley	3	2	66.7	37	5.4
Bury	2	2	100.0	23	8.7
Liverpool	28	20	71.4	294	6.8
Manchester	18	14	77.8	248	5.6
Oldham	8	4	50.0	46	8.7
Preston	5	4	80.0	52	7.7
Rochdale	1	1	100.0	32	3.1
St. Helens	8	8	100.0	42	19.0
Salford	3	3	100.0	69	4.3
Southport	1	1	100.0	37	2.7
Warrington	8	7	87.5	40	17.5
Wigan	3	3	100.0	32	9.4
Leicestershire	21	17	81.0	175	9.7
Leicester	22	18	81.8	119	15.1
Lincolnshire (combined)	28	24	85.7	254	9.4
Grimsby	3	2	66.7	38	5.3
Lincoln	2	2	100.0	33	6.1
London, N.E.	61	48	78.7	462	10.4
London, Inner	126	86	68.3	1,463	5.9
London, S.E.	65	59	90.8	769	7.7
London, S.W.	82	69	84.1	844	8.2
Middlesex	80	63	78.8	889	7.1
Norfolk	21	20	95.2	184	10.9
Great Yarmouth	3	3	100.0	22	13.6
Norwich	6	4	66.7	55	7.3
Northamptonshire	12	11	91.7	120	9.2
Northampton	7	7	100.0	54	13.0
Northumberland	28	26	92.9	212	12.3
Newcastle	15	15	100.0	113	13.3
Tynemouth	1	1	100.0	23	4.3

Table 6.3 contd.

Executive council	Sample denominator	Response rate Number	Response rate Percentage	Total no.of principals 1968	Replies as % of total principals
Nottinghamshire	54	42	77.8	360	11.7
Oxfordshire	11	10	90.9	152	6.6
Shropshire	15	14	93.3	143	9.8
Somerset	22	19	86.4	259	7.3
Bath	2	2	100.0	39	5.1
Staffordshire	26	24	92.3	235	10.2
Stoke	7	6	85.7	106	5.7
Wolverhampton	12	10	83.3	98	10.2
Walsall	15	11	73.3	64	17.2
West Bromwich	4	4	100.0	58	6.9
Burton	-	-	-	24	-
Warley	9	9	100.0	75	12.0
Suffolk (combined)	21	19	90.5	177	10.7
Ipswich	10	9	90.0	54	16.7
Sussex (combined)	26	25	96.2	400	6.3
Brighton	8	5	62.5	87	5.7
Eastbourne	4	4	100.0	32	12.5
Hastings	5	4	80.0	30	13.3
Warwickshire	27	20	74.1	246	8.1
Birmingham	57	43	75.4	440	9.8
Coventry	14	13	92.9	130	10.0
Westmorland	8	7	87.5	39	17.9
Wiltshire	46	36	78.3	184	19.6
Worcestershire	18	17	94.4	167	10.2
Dudley	7	5	71.4	57	8.8
Worcester	4	3	75.0	31	9.7
Yorkshire E.R.	10	8	80.0	104	7.7
Hull	21	17	81.0	115	14.8
Yorkshire N.R.	22	18	81.8	131	13.7
Teesside	6	4	66.7	147	2.7
Yorkshire W.R.	68	61	89.7	647	9.4
Barnsley	2	2	100.0	26	7.7
Bradford	13	13	100.0	117	11.1
Dewsbury	2	2	100.0	23	8.7
Doncaster	2	2	100.0	37	5.4
Halifax	5	4	80.0	35	11.4

Table 6.3 contd.

Executive council	Sample denominator	Response rate Number	Response rate Percentage	Total no.of principals 1968	Replies as % of total principals
Huddersfield	8	6	75.0	52	11.5
Leeds	21	20	95.2	207	9.7
Rotherham	5	4	80.0	33	12.1
Sheffield	23	19	82.6	207	9.2
Wakefield	4	4	100.0	27	14.8
York	9	9	100.0	60	15.0
Total, England	2,031	1,721	84.7	18,745	9.2

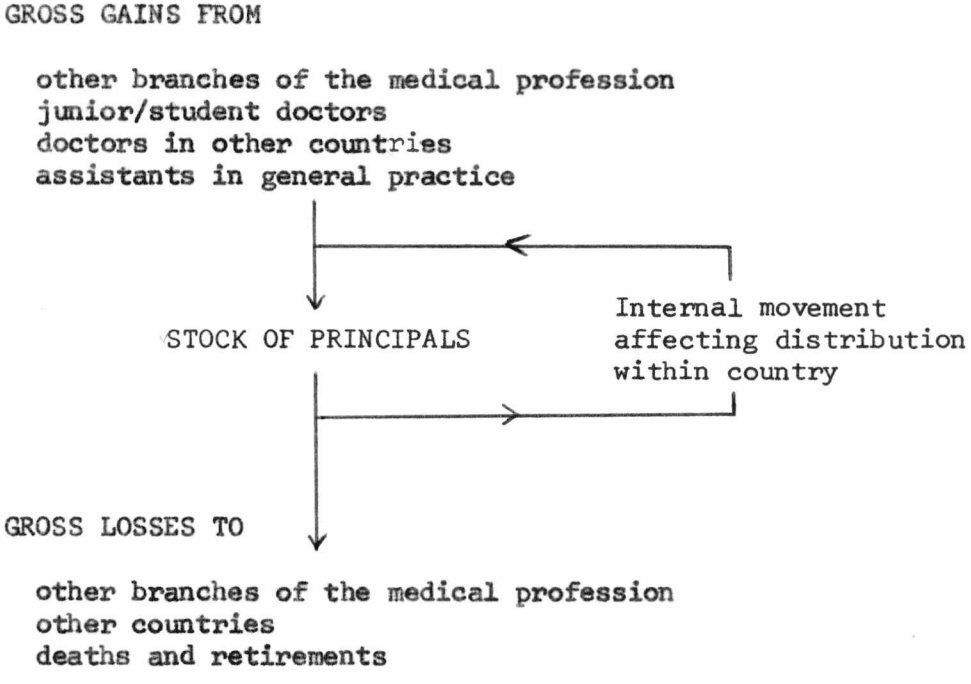
Table 6.4 Proportions of doctors responding in the main survey, by type of area, sex, age, number of principals in the practice, and list size

	In designated areas		In non-designated areas	
	Number of doctors approached	Percentage proportion who responded	Number of doctors approached	Percentage proportion who responded
Type of area				
Designated, + allowance	497	83.3		
Designated, - allowance	319	85.6		
Intermediate			304	84.5
Restricted			175	89.7
Open			736	84.2
Sex				
Male	764	85.2	1,097	85.4
Female	52	69.2	118	82.2
Age				
Under 30	7	100.0	12	91.7
30-34	58	91.4	89	88.8
35-39	126	91.3	128	87.5
40-44	166	84.9	224	90.2
45-49	139	82.7	210	87.6
50-54	125	85.6	173	85.5
55-59	87	78.2	175	82.9
60-64	57	82.5	100	80.0
65 and over	51	66.7	104	70.2
Principals in practice				
1	147	77.6	296	75.3
2	220	80.0	337	85.8
3	229	89.5	261	90.0
4	116	85.3	178	88.2
5	62	93.5	73	89.0
6 or more	42	83.3	70	92.9
List size				
under 1,000	12	25.0	32	62.5
1,000-1,599	22	77.3	118	81.4
1,600-2,199	65	78.5	326	83.1
2,200-2,599	126	83.3	321	88.8
2,600-3,199	348	86.5	293	87.4
3,200-3,799	220	86.8	106	83.0
3,800+	23	82.6	19	94.7

CHAPTER SEVEN

THE MOBILITY OF GENERAL PRACTITIONERS

Changes in the total number of family doctors in the country as a whole, and in any particular locality, may result from one or a combination of possible movements. Gross gains to the stock of principals may be made from various sources, including: (1) established doctors in other branches of the profession, such as hospital medicine, administration or public health; (2) younger doctors who are either preparing for a career in general practice or who must shortly make a career decision; (3) doctors practising or being trained in other countries; and (4) assistants in general practice who aspire to principal status. In addition, gross gains in any particular locality of the country may result from the internal migration of GPs, but in these cases the gains in one locality are inevitably offset by corresponding losses in another. Depletions to the stock of principals may occur through losses to (1), (3) and, exceptionally, (4) above, and also through deaths and retirements. Schematically these movements can be represented thus:



The net result of these gains and losses over time will determine the magnitude of changes in the total number of GPs in the country as a whole

and in its sub-areas. It follows, therefore, that the failure of any particular area (for example a medical practice area) to achieve or maintain a specified number of principals may be the outcome of one circumstance or a combination of circumstances. These circumstances, moreover, may vary from area to area. In one place the shortage of manpower may be attributable mainly to failure in recruiting younger doctors entering general practice for the first time; in another place it may result primarily from abnormally high losses of established GPs to other parts of the country.

In practice some movements are thought to be more easily influenced than others, and, perhaps reflecting this, the postwar history of manpower policy shows that greater effort has generally been expended nationally and locally on stimulating the gains than on controlling the losses. The success that can reasonably be expected from any attempts to persuade doctors to move will however depend to a large extent upon the mobility potential of the profession as a whole. How often do GPs move, and when are they most likely to move? If it should be shown that only a small proportion of doctors normally change practices during the course of their careers, or that those who do so are mainly elderly practitioners seeking smaller practices for their last few years, then the implications would be different (and possibly more serious) than a situation in which most doctors moved at least once in their lives, and at a fairly young age.

This chapter is concerned with the extent to which the doctors in the survey had moved from practice to practice during their careers, and the circumstances under which they had done so. The analysis is complicated by the ambiguity of the concept of 'mobility' and also by the technical problems arising from the cross-sectional or 'once-off' nature of the survey. The concept of mobility is used in two distinct ways. In one context it describes a career move from one practice to another. General practitioners

do not always need to change practices to achieve career advancement: many are promoted from assistant to partner in the same practice and some may move immediately into general practice as principals. But for many doctors at least one move has been a necessary condition of advancement, particularly in the early years of the NHS when the number of assistants seeking partnerships far exceeded the number of vacant posts. Yet even a large number of moves by family doctors would not necessarily constitute a potential source of geographical redistribution, for most moves may prove to be local, within the boundaries of the same executive council or even the same medical practice area. The second usage of the concept of mobility is therefore in the geographical sense of movement from one area unit to another. The unit may be a standard region, county, executive council, medical practice area, or whatever is chosen as appropriate. Thus by definition geographical mobility always implies movement between practices, but the reverse may not hold good in the light of what is taken to be the appropriate unit for the purposes of assessing geographical mobility.

The second general difficult underlying the analysis is that of allowing for the effects of time. Since the survey was a snapshot picture of a cross-section of GPs at a single moment in time, it included doctors scattered across the whole of the age range. Results based on total data for the two samples are consequently a sort of average of all trends over the past forty years or more, and may conceal important differences between generations. Mobility may have become much more or less common since the inception of the NHS, in which case the more recent trends will be of the greatest interest. The best way of studying such trends is by following successive cohorts of doctors over a long period of time, but this approach is costly and time-consuming. In this study, resort has been made to the second-best alternative of reconstructing inter-generation variations within cross-sectional data. The method has certain imperfections.

In particular, for each successive generation the upper age limit decreases in a cross-sectional survey, and the completed career patterns cannot readily be compared. This problem is discussed in greater detail later in the chapter in relation to the actual results of the survey.

Mobility between practices

The doctors participating in the survey were asked to list all the positions they had ever held in general practice, except as locums. A change of position was defined as a move from one practice to a different one, and specifically excluded promotions within the same practice. Just over 40 per cent of family doctors in each sample were still working in the same practice in which they had started, and about a third had worked in two different practices (that is, they had moved once). The remainder, about a quarter, had held three or more different positions, which means that they had moved from one practice to another on at least two occasions (table 7.1). It seems on past experience that more than half of all general practitioners can expect to change practices at least once during their careers, although most of those who do move will do so only once. There were no great differences in this respect between doctors in each type of practice area except that those in restricted areas had made rather more multiple moves than the rest. A small list size, probably in a pleasant residential area, may be the reward of those prepared to make several moves. It was not uncommon in pre-NHS days for doctors to do a spell in industrial working-class districts before selling up and moving to a seaside or rural practice, and although the sale of practices is no longer legal the Medical Practices Committee has urged family practitioner committees to give full consideration to doctors who, having spent much of their careers in heavy industrial areas, seek more modest vacancies in pleasanter places towards the end of their working lives.

The important question surrounding these results is whether doctors entering general practice in recent years are likely to move more or less frequently than their older colleagues. The answer is complicated by the fact that there is in any case an obvious relationship between age and mobility: doctors who have worked in three or four different practices, for example, are not likely to be much under 35. So quite apart from any changes over time one would expect the younger respondents in the survey to have moved less often than the older ones, even though their eventual career mobility may prove to be higher. The critical question is whether, before settling down in their main life-time practice, younger doctors nowadays are more likely to move than their older colleagues did before they settled. The answer we can give is inevitably imperfect because many of the younger doctors in the survey had almost certainly not yet settled and there is no sure way of telling how often they will move before doing so. If, however, it is assumed for the time being that most GPs will have settled by the time they reach 40 it is at least possible to compare mobility patterns up to that age through to the late 1950s. In particular, since virtually all doctors under 50 at the time of the survey would have spent all their time as GPs within the National Health Service, some simple comparisons can be made between the periods before and after 1948.

The figures in table 7.2 confirm that the youngest doctors (those under 30) in both samples had indeed moved less frequently, on average, than their older colleagues. Those in the next two age groups (30-39) had made an intermediate number of moves, but among those over 40 there were no major differences in either sample. There is certainly no firm evidence that doctors starting in general practice before 1948 had been consistently more or less mobile than those who had practised exclusively within the NHS. Nevertheless there are some indications that younger GPs may change practices more often than doctors have done in the past. Those in the age group 40-44, for example, had already made as many moves, on average, as doctors

in any of the higher groups, and over a lifetime they will probably make more moves. It is impossible to estimate the eventual mobility potential of the youngest doctors with any degree of certainty because new factors such as the introduction of the designated areas allowance may distort the extrapolation of past trends, but at least their record so far is consistent with the hypothesis of greater professional mobility potential among younger doctors entering general practice since the early 1960s.

A further interesting point in table 7.2 is that doctors in the 55-59 age group in both samples had moved less frequently than most other GPs over 40. This may be more than a chance result, for most of the respondents in this age group were completing their medical training between about 1935 and 1939, and would probably have served throughout the war in the armed forces. Consequently their average age on entering general practice was some four or five years higher than usual, and this, coupled with the desperate scramble for principalships in the years leading up to 1948 and the unwillingness to move once such a post had been secured, would reasonably account for their relative immobility. Other evidence of the unsettling effects of the war was found by Brown and Walker (1971) in their study of general practitioners in East Yorkshire, South Hampshire and Glamorgan. Only 58 per cent of those graduating between 1940 and 1954 had settled in the area of their first choice, compared with 68 per cent of the pre-1940 and post-1954 graduates. The evidence is therefore consistent: doctors whose training was affected by the war were older than average on entering general practice, therefore less likely to have moved, and consequently less likely to have finished up in the area of first preference.

Geographical mobility

Although a majority of general practitioners move from one practice to another during the course of their career, fewer are geographically mobile -

at least between regions and counties. (All areas outside England were treated as one single standard region for the purposes of this analysis.) About two-thirds of the respondents in each sample had so far spent their entire time as GPs in the same standard region, and most of those who had crossed regional boundaries had done so only once. Fewer than one doctor in ten had practised in more than two different regions (table 7.3). The question of how much manpower each region has gained and lost as a result of these movements is dealt with in the next chapter, but the judgement might be offered on the basis of the present information that family doctors are a rather more itinerant group than has hitherto been supposed: about a third of the respondents had made the move from one region to another, and almost one-in-ten had done so at least twice. The differences between the older and younger doctors are predictable: those under 40 had made fewer inter-regional moves, on average, than their older colleagues, although their eventual lifetime record may prove to be greater. Doctors in their forties in both samples had already achieved more inter-regional moves than those in the higher age ranges, and the 55-59 age group again showed less inclination to switch from one region to another than those in either the preceding or subsequent age groups.

Movement between geographical counties followed a similar pattern: an increasing number of inter-county moves, on average, in successive age groups up to about 40; broadly similar trends beyond that age with the exception of doctors in the 55-59 age range; and only a small proportion of moves between three or more different counties (table 7.4). As expected, however, the actual number of doctors in each sample moving across county boundaries was somewhat greater than the number moving from one region to another (40 per cent compared with about 33 per cent). Nevertheless, most of those who had moved geographically had done so inter-regionally, for four-fifths of all doctors crossing county boundaries had also changed regions in the process.

The different types of career and geographical mobility described above can be combined in the following way:

1. Doctors who had spent their entire careers to date in the same practice (no mobility).
2. Doctors who had changed practices within the same county (mobility within county).
3. Doctors who had moved between counties within the same region (mobility within region).
4. Doctors who had moved from one region to another (mobility between regions).

The distribution of respondents in each sample between these four categories of movement is given in table 7.5, with doctors above and below the age of 40 separated out. Even allowing for the limitations of a cross-sectional survey, it seems that these figures are tolerably good indicators of the amount and type of movement that can be expected from most existing practitioners over the course of a full career, although the situation may well be changing. Quite apart from general developments (planned and unplanned) in the structure and administration of general practice, there is evidence in the survey that younger doctors may now be more willing or more able to move than their counter-parts in previous years. Already, doctors in their forties had, on average, changed practices more often than the older GPs, and the full life-time differentials will probably be even greater. There can be less certainty about the mobility potential of younger doctors because they had completed an insufficiently large part of their careers on which to base reliable predictions, but at least their performance so far is consistent with the hypothesis of greater freedom of movement. The implications of these results for planning and policy-making are intriguing. It seems generally to have been assumed that GPs have a low propensity for change and movement, and that an important aim of any incentive must be to stimulate initial ideas about the desirability of change. In fact the main

problem may be less one of getting doctors to move in the first place than of directing their natural mobility potential into the 'right' areas and, having got them there, of encouraging them to stay. The next step must therefore be to identify the circumstances under which doctors tend to move.

Correlates of mobility

Age

It seems reasonably clear from the evidence in table 7.2 that most doctors who move do so in the early years of their careers, possibly before they acquire family commitments and while they are seeking to establish themselves. Most changes of practice, especially among the older doctors in the survey, were from assistant to principal status, and in many cases were made after only a few years in general practice. Once settled as partners it is expected that subsequent changes will be few, with such exceptions as married women moving with their husbands and older practitioners moving to smaller practices towards the end of their careers. In fixing more precisely the age span during which most GPs change from one practice to another, the problem again arises of using a cross-sectional study for what should ideally be a longitudinal analysis. Whilst the ages of the doctors when they took up their current appointments are known, there can be no certainty that these will be their terminal jobs. Indeed, many of the younger GPs in the survey undoubtedly will change practices again, some of them several times. There is no perfect solution to this problem without resort to a much larger and more complex study, but a sufficiently good estimate can be made by assuming as a general rule that the older a doctor grows the less likely he is to move again. The question then is whether the proportion of movers who had started their present posts by any given age is the same for the younger as for the older respondent.

The figures in table 7.6 are restricted to respondents who had changed practices at least once, and they relate age at the time of the survey with age at starting current appointments. It is clear that older doctors had, as a rule, moved into their current posts at a later age than the younger respondents. If, for instance, those in the highest age group (60+) make no further moves before they retire, then more than a quarter of them will have changed practices after the age of 40 and at least one in ten will have moved after 50. In the next lowest age group (50-59) the proportion moving after 40 falls to about one-fifth, and the effects of the war are seen again in the relatively low proportion of these doctors who had started in their current posts by the age of 30. Whether the completed career histories of the younger respondents will finally show a similarity to that of the over-60s is a matter for speculation. The data in table 7.6 are at least consistent with the possibility of this happening, but it could equally well transpire that these younger doctors might suddenly put down roots and remain in one place for the rest of their lives.

Certain background factors are relevant in forming an opinion. The difficulties of achieving partnership status in the 1950s and the consequent tendency for doctors at that time to spend quite long periods as assistants are less likely to affect those entering general practice today. It is much easier for a younger man to become a partner and achieve quick financial parity in the 1970s than ten or fifteen years earlier, and hence the opportunities to settle at an earlier age are greater. Reinforcing this is the fact that early marriage tends to diminish the likelihood of moving (see below), and that as the age of marriage falls so an increasing number of GPs can be expected to settle by about their mid-30s. The 1966 Association for the Study of Medical Education survey showed that of final-year medical students in that year 22 per cent were married and 14 per cent were either engaged or intending to be married within a year. (Royal Commission, 1968). By 1971 the proportion of final-year students who

were married had risen to about 25 per cent. Against this interpretation, however, is the earlier conclusion that the younger respondents showed clear signs of making at least as many career moves as their older colleagues had done, and perhaps even more. Unless they deviate radically from the mobility patterns of their immediate seniors it seems that the future tendency may be for doctors entering general practice to make one or two quick moves before settling at a comparatively young age.

Marriage and family responsibilities

The evidence from the survey shows that the younger a doctor marries, the less likely he is to move, even when allowance is made for the effect of his age. Respondents who had married after entering general practice were more mobile in every sense than those marrying before starting their careers as GPs: they were more likely to have changed practices, more likely to have done so several times, and more likely to have crossed regional boundaries (table 7.7). The differences are consistent in both samples. Even when the effect of age is controlled the significance of the timing of marriage remains. Of doctors over 40, for example, 46 per cent of those in the non-designated sample who had married before taking their first jobs in general practice were still in the same practice compared with only 36 per cent of those marrying after. In the designated sample the respective proportions were 41 per cent and 32 per cent. Among respondents under 40 the trends are naturally less clear, but they are consistent with the conclusion that early marriage has tended to reduce the likelihood of family doctors moving in the past, and it may still have this effect.

Part of the explanation lies not only in the marriage itself but also in the consequent assumption of family responsibilities. The younger people marry the earlier they tend to assume the responsibilities of

parenthood, and hence the timing of the marriage appears to be an indirect rather than a direct factor in mobility. It is in general easier for single people and childless couples to move house than for families, and unless the children are at boarding school the upheavals usually increase as the children get older. There is clear evidence from the survey that the decision to settle is closely related to the cycle of family development, and particularly to the educational needs of the children (table 7.8). Just over two-fifths of the married doctors had started in their current positions before they had any children, and over 90 per cent had started before the eldest child had reached secondary school age. Put the other way round, fewer than one married doctor in ten had so far moved after his eldest child had reached 11 years of age. Even among those who had moved more than once the proportions who had changed practices after their children had reached secondary school age were only 16 per cent and 11 per cent respectively in the designated and non-designated samples. With a few exceptions, therefore, doctors who had changed practices after the age of about 40 were either those who had never married (of whom there were very few in either sample) or those who were later in starting their families.

Post-graduate training

The results discussed so far suggest that events which postpone the age of entry into general practice also reduce mobility potential. This is a reasonable conclusion from therrelationship between marriage and mobility, and the effect of the second world war has already been noted. Happily, war is epiphenomenal, and post-graduate training is a much more common reason for late entry into general practice. On the basis of the analysis so far we would expect that, other things being equal, GPs pursuing post-graduate training and higher degrees would be less likely to move than those who are not. The evidence confirms this to be the case, even when age is controlled (table 7.9). Among the over-40s in the designated sample, 46 per cent

of those gaining secondary qualifications before entering general practice had stayed in the same practice up to the time of the survey compared with only 29 per cent of those who obtained such qualifications after starting in practice. In the non-designated sample the corresponding percentages were 49 and 37. Doctors with no additional qualifications fell midway between these extremes in both samples. There remains the possibility that respondents who had gained their further qualifications before entering practice may have differed from the rest in other ways which affected their mobility potential, but the results are at least consistent with the basic hypothesis about the relationship between mobility and the career cycle.

Birthplace

The influence of certain biographical factors on a doctor's choice of practice location is considered in some detail in chapter 9, but it is interesting at this point to contrast the experiences of English-born and non-English-born practitioners. It is difficult to predict whether those born outside the country may be more or less likely to change practices and move from one area to another than English-born doctors. On the one hand it is arguable that having already made one significant move (though not necessarily as a GP) they would be more disposed towards subsequent ones; on the other hand many respondents of foreign nationality reported considerable difficulties in obtaining the kind of practice they wanted, and several had been unable to move even when they wished to. The evidence from the survey is equivocal (table 7.10). Forty-one per cent of the designated sample and 34 per cent of the non-designated sample had been born outside England, most of them in Scotland or Ireland, and as a whole they had moved more frequently, and probably over a greater distance, than those born in England. In the designated sample, for instance, 35 per cent had remained in the same practice up to the time of the survey and 42 per cent had crossed regional boundaries, compared with 45 per cent and 30 per cent

respectively among their English-born counterparts. Similar percentages are found in the non-designated sample. These results tend to support the argument that having made at least one international residential move people are less likely subsequently to settle in one place, but many other factors may be affecting the results. Moreover, the mobility patterns of doctors born in each individual country show much inconsistency, although the frequencies are admittedly low. It seems safe to conclude that GPs born outside England are likely to respond at least as favourably as English-born practitioners to incentives to move, although the reasons for this are unclear.

Table 7.1 Number of positions held in general practice, by type of practice area

No. of positions in general practice	Type of practice area			
	Designated	Open	Intermediate	Restricted
1	283 (41.2)	275 (44.4)	112 (43.6)	65 (41.4)
2	245 (35.7)	193 (31.1)	90 (35.0)	43 (27.4)
3	105 (15.3)	90 (14.5)	38 (14.8)	40 (25.5)
4	35 (5.1)	42 (6.8)	9 (3.5)	7 (4.5)
5	15 (2.2)	12 (1.9)	6 (2.3)	1 (0.6)
6	2 (0.3)	4 (0.6)	1 (0.4)	-
7	-	1 (0.2)	-	-
Not known	2 (0.3)	3 (0.5)	1 (0.4)	1 (0.6)
Total	687 (100)	620 (100)	257 (100)	157 (100)
Mean number of positions	1.9	1.9	1.9	1.9

Percentages calculated down the columns, and included in brackets

Table 7.2 Number of positions held in general practice and present age of doctors

Present age	Number of positions in general practice				Total	Mean number of positions
	1	2	3+	Not known		
DESIGNATED SAMPLE						
Less than 30	6(85.7)	-	1(14.3)	-	7(100)	1.3
30 - 34	29(54.7)	18(34.0)	6(11.3)	-	53(100)	1.6
35 - 39	52(45.2)	39(33.9)	24(20.9)	-	115(100)	1.8
40 - 44	47(33.3)	56(39.7)	38(27.0)	-	141(100)	2.1
45 - 49	45(39.1)	37(32.2)	33(28.7)	-	115(100)	2.0
50 - 54	42(39.3)	46(43.0)	17(15.9)	2(1.9)	107(100)	1.8
55 - 59	30(44.1)	24(35.3)	14(20.6)	-	68(100)	1.9
60 and above	32(39.5)	25(30.9)	24(29.6)	-	81(100)	2.1
Total	283(41.2)	245(35.7)	157(22.9)	2(0.3)	687(100)	1.9
NON-DESIGNATED SAMPLE						
Less than 30	9(81.8)	2(18.2)	-	-	11(100)	1.2
30 - 34	39(49.4)	32(40.5)	8(10.1)	-	79(100)	1.6
35 - 39	48(42.9)	35(31.3)	29(25.9)	-	112(100)	2.0
40 - 44	77(38.1)	60(29.7)	65(32.2)	-	202(100)	2.1
45 - 49	78(42.4)	61(33.2)	45(24.5)	-	184(100)	1.9
50 - 54	60(40.5)	54(36.5)	33(22.3)	1(0.7)	148(100)	1.9
55 - 59	67(46.2)	43(29.7)	35(24.1)	-	145(100)	1.9
60 and above	74(48.4)	39(25.5)	36(23.5)	4(2.6)	153(100)	1.9
Total	452(43.7)	326(31.5)	251(24.3)	5(0.5)	1034(100)	1.9

Percentages calculated across rows, and included in brackets

Table 7.3 Number of different standard regions of practice and present age of doctors

Present age	Number of different standard regions				Total	Mean number of regions
	1	2	3+	Not known		
DESIGNATED SAMPLE						
Less than 30	6(85.7)	1(14.3)	-	-	7(100)	1.1
30 - 34	42(79.2)	9(17.0)	2(3.8)	-	53(100)	1.2
35 - 39	79(68.7)	30(26.1)	6(5.2)	-	115(100)	1.4
40 - 44	85(60.3)	45(31.9)	10(7.1)	1(0.7)	141(100)	1.5
45 - 49	66(57.4)	37(32.2)	12(10.4)	-	115(100)	1.5
50 - 54	71(66.4)	29(27.1)	5(4.7)	2(1.9)	107(100)	1.4
55 - 59	47(69.1)	17(25.0)	4(5.9)	-	68(100)	1.4
60 and above	48(59.3)	24(29.6)	8(9.9)	1(1.2)	81(100)	1.5
Total	444(64.6)	192(27.9)	47(6.8)	4(0.6)	687(100)	1.4
NON-DESIGNATED SAMPLE						
Less than 30	10(90.9)	1(9.1)	-	-	11(100)	1.1
30 - 34	61(77.2)	16(20.3)	2(2.5)	-	79(100)	1.3
35 - 39	82(73.2)	24(21.4)	5(4.5)	1(0.9	112(100)	1.3
40 - 44	130(64.4)	48(23.8)	22(10.9)	2(1.0)	202(100)	1.5
45 - 49	112(60.9)	57(31.0)	15(8.2)	-	184(100)	1.5
50 - 54	93(62.8)	44(29.7)	9(6.1)	2(1.4)	148(100)	1.4
55 - 59	104(71.7)	31(21.4)	10(6.9)	-	145(100)	1.4
60 and above	105(68.6)	33(21.6)	10(6.5)	5(3.3)	153(100)	1.4
Total	697(67.4)	254(24.6)	73(7.1)	10(1.0)	1034(100)	1.4

Percentages calculated across rows, and included in brackets

Table 7.4 Number of different geographical counties of practice and present age of doctors

Present age	Number of different counties 1	2	3+	Not known	Total	Mean number of counties
DESIGNATED SAMPLE						
Less than 30	6(85.7)	1(14.3)	-	-	7(100)	1.1
30 - 34	37(69.8)	14(26.4)	2(3.8)	-	53(100)	1.3
35 - 39	70(60.9)	36(31.3)	9(7.8)	-	115(100)	1.5
40 - 44	68(48.2)	54(38.3)	18(12.8)	1(0.7)	141(100)	1.6
45 - 49	59(51.3)	38(33.0)	18(15.7)	-	115(100)	1.6
50 - 54	64(59.8)	29(27.1)	12(11.2)	2(1.9)	107(100)	1.5
55 - 59	42(61.8)	26(38.2)	-	-	68(100)	1.4
60 and above	45(55.6)	25(30.9)	10(12.3)	1(1.2)	81(100)	1.6
Total	391(56.9)	217(31.6)	75(10.9)	4(0.6)	687(100)	1.5
NON-DESIGNATED SAMPLE						
Less than 30	9(81.8)	2(18.2)	-	-	11(100)	1.2
30 - 34	49(62.0)	27(34.2)	3(3.8)	-	79(100)	1.4
35 - 39	69(61.6)	29(25.9)	13(11.6)	1(0.9)	112(100)	1.5
40 - 44	105(52.0)	63(31.2)	32(15.8)	2(1.0)	202(100)	1.6
45 - 49	102(55.4)	57(31.0)	25(13.6)	-	184(100)	1.6
50 - 54	80(54.1)	51(34.5)	15(10.1)	2(1.4)	148(100)	1.6
55 - 59	96(66.2)	34(23.4)	15(10.3)	-	145(100)	1.4
60 and above	96(62.8)	33(21.6)	19(12.4)	5(3.3)	153(100)	1.5
Total	606(58.6)	296(28.6)	122(11.8)	10(1.0)	1034(100)	1.5

Percentages calculated across rows, and included in brackets

Table 7.5 Mobility type and present age of doctors

Mobility type	Sample and present age			
	Designated		Non-designated	
	Under 40	40 & above	Under 40	40 & above
No mobility	87(49.7)	196(38.3)	96(47.5)	356(42.8)
Mobility within county	26(14.9)	82(16.0)	31(15.3)	122(14.7)
Mobility within region	14(8.0)	39(7.6)	26(12.9)	66(7.9)
Mobility between regions	48(27.4)	191(37.3)	48(23.8)	279(33.5)
Not known	-	4(0.8)	1(0.5)	9(1.1)
Total	175(100)	512(100)	202(100)	832(100)

Percentages calculated down columns, and included in brackets

Table 7.6 Present age and age at time of starting current position of all doctors who had changed practices at least once

Present age	Age at starting current position						Total
	Less than 30	30-34	35-39	40-49	50 and above	Not known	
DESIGNATED SAMPLE							
Less than 35	14(56.0)	11(44.0)	-	-	-	-	25(100)
35 - 39	24(38.1)	35(55.6)	4(6.3)	-	-	-	63(100)
40 - 49	57(34.8)	58(35.4)	33(20.1)	16(9.8)	-	-	164(100)
50 - 59	12(11.9)	44(43.6)	26(25.7)	15(14.9)	4(4.0)	-	101(100)
60 and above	17(35.0)	13(26.5)	5(10.2)	7(14.3)	6(12.2)	1(2.0)	49(100)
Total	124(30.8)	161(40.0)	68(16.9)	38(9.5)	10(2.5)	1(0.2)	402(100)
NON-DESIGNATED SAMPLE							
Less than 35	33(78.6)	9(21.4)	-	-	-	-	42(100)
35 - 39	12(18.8)	43(67.2)	9(14.1)	-	-	-	64(100)
40 - 49	51(22.1)	99(42.9)	55(23.8)	26(11.3)	-	-	231(100)
50 - 59	23(13.9)	59(35.8)	43(26.1)	27(16.4)	11(6.7)	2(1.2)	165(100)
60 and above	16(21.3)	18(24.0)	13(17.3)	15(20.0)	11(14.7)	2(2.7)	75(100)
Total	135(23.4)	228(39.5)	120(20.8)	68(11.8)	22(3.8)	4(0.7)	577(100)

Percentates calculated across rows, and included in brackets

Table 7.7 Mobility type, time of marriage, and present age of doctors

Time of marriage and present age	Mobility type: No mobility	Mobility within county	Mobility within region	Mobility between regions	Not known	Total
DESIGNATED SAMPLE						
Marriage before entering general practice:						
under 40	70(48.6)	22(15.3)	12(8.3)	40(27.8)	-	144(100)
40 & above	125(40.8)	42(13.7)	26(8.5)	112(36.6)	1(0.3)	306(100)
Marriage after entering general practice:						
under 40	12(48.0)	3(12.0)	2(8.0)	8(32.0)	-	25(100)
40 & above	57(32.8)	35(20.1)	12(6.9)	69(39.7)	1(0.6)	174(100)
Never married	13(50.0)	4(15.4)	1(3.8)	8(30.8)	-	26(100)
Marital status not known	6(50.0)	2(16.7)	-	2(16.7)	2(16.7)	12(100)
Total	283(41.2)	108(15.7)	53(7.7)	239(34.8)	4(0.6)	687(100)
NON-DESIGNATED SAMPLE						
Marriage before entering general practice:						
under 40	78(45.9)	27(15.9)	24(14.1)	41(24.1)	-	170(100)
40 & above	235(46.4)	84(16.6)	34(6.7)	151(29.8)	2(0.4)	506(100)
Marriage after entering general practice:						
under 40	11(37.9)	10(34.5)	2(6.9)	5(17.2)	1(3.4)	29(100)
40 & above	92(36.2)	31(12.2)	26(10.2)	104(40.9)	1(0.4)	254(100)
Never married	25(51.0)	1(2.0)	4(8.2)	18(36.7)	1(2.0)	49(100)
Marital status not known	11(42.3)	-	2(7.7)	8(30.8)	5(19.2)	26(100)
Total	452(43.7)	153(14.8)	92(8.9)	327(31.6)	10(1.0)	1034(100)

Percentages calculated across rows, and included in brackets

Table 7.8 Mobility type and age at time of starting current position (married doctors only)

Mobility type	Age of children at starting current position			Total
	No children	Eldest child under 11	Eldest child over 11	
DESIGNATED SAMPLE				
No mobility	150(56.4)	110(41.4)	6(2.3)	266(100)
Mobility within county	47(46.5)	48(47.5)	6(5.9)	101(100)
Mobility within region	19(36.5)	29(55.8)	4(7.7)	52(100)
Mobility between regions	76(33.0)	132(57.4)	22(9.6)	230(100)
Not known	-	-	-	-
Total	292(45.0)	319(49.2)	38(5.8)	649(100)
NON-DESIGNATED SAMPLE				
No mobility	231(55.7)	171(41.2)	13(3.1)	415(100)
Mobility within county	55(36.7)	81(54.0)	14(9.3)	150(100)
Mobility within region	29(33.7)	55(64.0)	2(2.3)	86(100)
Mobility between regions	94(31.0)	175(57.8)	34(11.2)	303(100)
Not known	3(60.0)	2(40.0)	-	5(100)
Total	412(42.9)	484(50.5)	63(6.6)	959(100)

Percentages calculated across rows, and included in brackets

Table 7.9 Mobility type, time of gaining secondary qualifications, and present age of doctors

Time of gaining secondary qualifications and present age	Mobility type: No mobility	Mobility within county	Mobility within region	Mobility between regions	Not known	Total
DESIGNATED SAMPLE						
Qualifications gained before entering general practice:						
under 40	30(54.5)	5(9.1)	4(7.3)	16(29.1)	-	55(100)
40 and above	60(46.2)	20(15.4)	9(6.9)	41(31.5)	-	130(100)
Qualifications gained after entering general practice:						
under 40	11(39.3)	6(21.4)	1(3.6)	10(35.7)	-	28(100)
40 and above	16(28.6)	9(16.1)	8(14.3)	22(39.3)	1(1.8)	56(100)
No secondary qualifications	160(39.6)	67(16.6)	31(7.7)	144(35.6)	2(0.5)	404(100)
Not known	6(42.9)	1(7.1)	-	6(42.9)	1(7.1)	14(100)
Total	283(41.2)	108(15.7)	53(7.7)	239(34.8)	4(0.6)	687(100)
NON-DESIGNATED SAMPLE						
Qualifications gained before entering general practice:						
under 40	47(52.2)	9(10.0)	16(17.8)	18(20.0)	-	90(100)
40 and above	111(49.8)	28(12.6)	20(9.0)	63(28.3)	1(0.4)	223(100)
Qualifications gained after entering general practice:						
under 40	16(51.6)	4(12.9)	2(6.5)	9(29.0)	-	31(100)
40 and above	46(36.8)	17(13.6)	9(7.2)	51(40.8)	2(1.6)	125(100)
No secondary qualifications	221(40.8)	91(16.8)	44(8.1)	182(33.6)	4(0.7)	542(100)
Not known	11(47.8)	4(17.4)	1(4.3)	4(17.4)	3(13.0)	23(100)
Total	452(43.7)	153(14.8)	92(8.9)	327(31.6)	10(1.0)	1034(100)

Percentages calculated across rows, and included in brackets

Table 7.10 Mobility type and country of birth

Country of birth	Mobility type: No mobility	Mobility within county	Mobility within region	Mobility between regions	Not known	Total
DESIGNATED SAMPLE						
Scotland	30(31.3)	10(10.4)	7(7.3)	49(51.0)	-	96(100)
Wales	9(40.9)	3(13.7)	3(13.7)	6(27.3)	1(4.5)	22(100)
Northern Ireland/ Irish Republic	31(35.2)	16(18.2)	4(4.5)	37(42.0)	-	88(100)
Commonwealth	9(29.0)	6(19.4)	5(16.1)	10(32.3)	1(3.2)	31(100)
Other	21(44.7)	6(12.8)	3(6.4)	17(36.2)	-	47(100)
Sub-total	100(35.2)	41(14.4)	22(7.7)	119(41.9)	2(0.7)	284(100)
England	183(45.4)	67(16.6)	31(7.7)	120(29.8)	2(0.5)	403(100)
Grand total	283(41.2)	108(15.7)	53(7.7)	239(34.8)	5(0.6)	687(100)
NON-DESIGNATED SAMPLE						
Scotland	38(39.2)	10(10.3)	5(5.2)	44(45.4)	-	97(100)
Wales	17(43.6)	2(5.1)	1(2.6)	18(46.2)	1(2.6)	39(100)
Northern Ireland/ Irish Republic	31(32.3)	15(15.6)	11(11.5)	39(40.6)	-	96(100)
Commonwealth	19(42.2)	9(20.0)	4(8.9)	13(28.9)	-	45(100)
Other	32(42.1)	20(26.3)	2(2.6)	21(27.6)	1(1.3)	76(100)
Sub-total	137(38.8)	56(15.9)	23(6.5)	135(38.2)	2(0.6)	353(100)
England	315(46.3)	97(14.2)	69(10.1)	192(28.2)	8(1.2)	681(100)
Grand total	452(43.7)	153(14.8)	92(8.9)	327(31.6)	10(1.0)	1034(100)

Percentages calculated across rows, and included in brackets

CHAPTER EIGHT

AN AREA ANALYSIS OF MOBILITY PATTERNS

In this chapter the analysis of mobility patterns is carried one stage further by considering how they have affected different parts of the country. The point was made in chapter 7 that the number of principals in any locality is eventually determined by offsetting the gains of GPs from different sources against the losses incurred for various reasons. Incoming doctors may include those entering general practice for the fist time, those coming into the country from abroad, and those moving from practices elsewhere in the country. Losses may result from death, retirement, resignation etc., as well as from doctors moving out to practices in other parts of the country. It is probable that most areas, over a period of time, will experience a mixture of these different forms of losses and gains, but the composition of the mixture may vary significantly from area to area and may even constitute a major factor in current manpower shortages. If the 'performance' of different area units on each of these movements could be assessed and contrasted with the average performance for that unit across the country as a whole, then it would be possible to identify the main reasons why some areas suffer a shortage of family doctors. For example, in a county which would have an average list size below 2,500 had it been able to attract the same proportion of doctors entering general practice for the first time as most other counties, the remedy for the manpower shortage might be sought in more vigorous publicity among younger doctors and medical students. In another case the major relative deficit may be of doctors entering the country from abroad or moving from other areas, or the shortage may lie in abnormally high wastage rates through death or retirement.

A full analysis of this kind would be exceedingly complicated, and would require longitudinal data. It would enable us to take a particular unit and a particular starting date and then trace the gross gains and

losses to the unit over any chosen time period. The results could be presented in the form that between one date and another the unit had recorded a gross gain of x practitioners (made up of such-and-such a proportion of newly qualified doctors, immigrants from abroad, and family doctors moving from other parts of the country), and suffered a gross loss of y doctors (so many of whom died, retired, emigrated, or moved elsewhere). The individual doctors making up the results would change over the period under review as some came and some went, and there would probably be no single point in time when all the individuals in the analysis were practising together. A cross-sectional design, by contrast, is limited to just such a single moment of time, and hence any reconstruction of earlier migration patterns can take account only of those people in the system at the one point in time. It is possible from cross-sectional data to categorise the sources from which existing doctors in any unit derived, but there can be no record of those who came and then died or retired or moved elsewhere before the survey was made. The only losses revealed by such a study are those resulting from internal migration to other parts of the country, and they show up in the data as gains to the host area.

This point of methodology has been elaborated in some detail because the aim of this chapter is necessarily limited, and might easily be misunderstood. Its purpose is to reconstruct the geographical mobility patterns of a sample of doctors still in practice at the time of the survey, and then to use the results to see the extent to which the current manpower problems in an area may be attributable to adverse trends within those patterns. In doing this, the analysis around which the chapter is structured simply compares the first and the current practice locations of the doctors in the sample: the data cannot therefore indicate total changes in the stock of GPs in an area during a specified period of time. Such data can be derived only from a longitudinal study. This limitation means that words such as 'gains' and 'losses' acquire a particular and

somewhat restricted meaning. To say that a certain region has gained 150 GPs does not mean that a total of 150 practitioners had moved into the region during a specified time period: it means that 150 doctors in the sample were practising in that region at the time of the survey, having moved into it as GPs at some time in the past. Likewise to say that a certain county has lost 50 GPs means that 50 respondents in the survey had their first appointments in general practice in the county, but were currently practising elsewhere in England at the time of the survey. Similarly the phrase 'the number of doctors first practising in a region' does not refer to the total stock of GPs at some specific point in the past, but to the number of practitioners in the sample whose first appointment had been in that region. In short, our concern is with patterns of geographical mobility within a closed system, and with the extent to which these internal movements have affected the overall distribution of manpower.

In order to simplify what might easily become an impossibly complicated analysis the chapter concentrates on migration between standard regions and between geographical counties. To confine the analysis to these two levels is to remain removed from the unit of ultimate significance (the medical practice area) and certain assumptions must therefore be made about interchanges at the sub-county level. However, the results would not only become very complex if extended to executive councils and medical practice areas, but would also be of dubious value in many instances because the sample frequencies become very small. The main emphasis of the chapter is therefore on inter-regional migration, with some consideration given to the inter-county patterns. It is hoped that the results will at least give an indication of the value to be derived from a continuous monitoring of the geographical movements of family doctors.

Migration patterns: the net regional balance

Table 8.1 sets out the basic migration data at regional level. The figures in this and subsequent tables in the chapter are 1968 population estimates for England, obtained by inflating the sample frequencies by the appropriate factor for the designated and non-designated samples in each standard region. The first column shows the total number of principals practising in England in 1968 classified by the region of their first practice (which in many cases is also the region of their current practice), and expressed in column 2 as a base of 100. The total in this first column (17,309) is somewhat less than the full number of principals in 1968 because some had their first appointments outside England. Column 11 shows the distribution of principals in England in 1968 classified by their current region of practice at the time of the survey. The difference between the total in this column and the total in the first column is accounted for by doctors who had come in from outside England (column 9). The last column in the table expresses the numbers in column 11 as percentages of the numbers first practising in the regions.

Looking first at the overall changes recorded in columns 11 and 12, two regions (Yorkshire/Humberside and the South-West) have suffered a net loss of doctors of 4 per cent and 9 per cent respectively. This means that the net result of balancing the outward movement of doctors first practising in these two regions against the inflow of GPs from other regions and countries has been a loss of almost 70 practitioners from Yorkshire and about 170 from the South-West. These losses are more serious for Yorkshire than for the South-West, for even though the latter region has suffered the greater depletion of manpower it nevertheless remains well supplied with GPs. The projected rate of population growth is higher in the South-West, however, and it would be desirable to monitor future movements into and out of the region to identify the factors which may underlie any future increases occurring in list sizes in the region.

The West Midland region has broken even: that is, the gross gains to the region from various sources have been offset almost exactly by the losses. This region, however, is expected to be among the fastest growing regions over the next fifteen years, and it must either attract an increasing number of doctors or hold on to a greater proportion of them if the supply is to keep pace with population growth. The Northern region has experienced a net gain of some 70 principals (6 per cent). The regional average list size has been hovering around 2,500 for several years, and its projected rate of population growth is the lowest in the country. This is therefore a region in which one might look for no more than a moderate rate of increase in the stock of GPs. East Anglia has experienced a somewhat larger net percentage increase (11 per cent). At present the region is well supplied generally with family doctors, but it is expected to be the fastest growing region in the country over the next fifteen years, and it must continue to attract and retain practitioners in order to keep pace with the anticipated rapid population growth.

The South-East has shown a similar overall increase to East Anglia (12 per cent), but this region has almost reached its maximum expansion capacity for several years, and is expected to have a lower rate of population growth over the next fifteen years than any region except the North. The North-West, with a net gain of almost 20 per cent, has been one of the most successful regions in this respect, but it still has an average list above the 2,500 mark, and is expected to experience a moderately high rate of population growth in the short-term. Lastly, the East Midlands has shown a higher net percentage increase than any other region (26 per cent), but has still been unable to keep pace with the increase in population. The regional average list size has been rising steadily over the past few years, and the high projected rate of population growth makes it probable that the regional shortfall of doctors will continue at least for several years.

The balance of internal regional migration

These results suggest that the net regional gains and losses are unrelated to the current staffing situation in the regions. Although conclusions based upon only eight comparisons are necessarily tentative, there is no clear relationship between the magnitude of net gains and losses and the current surplus or shortfall of GPs at the regional level. The analysis must therefore focus upon the components of this overall situation, starting with the results of the internal movement of doctors within the country from one region to another. The figures are contained in columns 7 and 8 of table 8.1, and since the gains to some regions are the losses from others, the sum total of such gains and losses is zero.

The regions fall roughly into four pairs. The first, comprising the South-East and East Anglia, both gained from the balance of internal movement (by 4 per cent and 5 per cent respectively), but would still have had regional average list sizes below 2,500 in 1968 even if the balance had been zero. Part of this gain has therefore been 'unnecessary' in the sense that it has diverted manpower to these regions which might be more urgently needed elsewhere. The 'unnecessary' migration routes are shown in table 8.2. Reading across the rows, it is seen that the major sources of 'surplus' manpower into the South-East were the South-West, the North, Yorkshire/ Humberside and the West Midlands; and the largest gains to East Anglia were from the North-West and South-West.

The second pair of regions, the East Midlands and the North-West, also gained from the balance of internal movement (by 16 per cent and 10 per cent respectively), but unlike East Anglia and the South-East their average list sizes were already in excess of 2,500 in 1968 and would have been even higher but for the gains. However, table 8.2 shows that much of the increase in the East Midlands was at the expense of the West Midlands, and in the North-West at the expense of Yorkshire/Humberside and the West

Midlands. It is therefore largely self-defeating since these two losing regions themselves suffered a shortfall of family doctors in that year.

The third pair of regions, the South-West and the North, both suffered a loss through internal migration (of 17 per cent and 5 per cent respectively), yet still managed to maintain a regional average list size below 2,500 in 1968. In the South-West, which lost most of its migrating doctors to the South-East and the West Midlands, the list size remained well below this figure. The situation in the Northern region is different, for although the percentage loss was much lower than in the South-West the regional list size had been hovering just below the 2,500 mark for some years prior to 1968, and exceeded it in 1969 and 1970. Most of those leaving this region went to the South-East and the North-West.

The last two regions, Yorkshire/Humberside and the West Midlands, also suffered a loss through the balance of internal migration (of 11 per cent and 7 per cent respectively) and in addition they had moderately large shortfalls of principals in 1968. These two regions have consequently suffered the most as a result of internal migration. The majority of GPs leaving Yorkshire went across the Pennines to the North-West, and some went to the South-East and the West Midlands. The greatest losses from the West Midlands were to the East Midlands, the South-East and the North-West.

The components of the balance of internal regional migration: gross losses

The preceding two sections considered the net changes in the manpower stock of each region resulting from the balance of all movements (including those into the country from outside as well as those internal to the country) and the balance of internal migration only. Already these results contain some interesting implications. It is seen from table 8.2, for example, that

the net effect of all movements of doctors between the South-East and Yorkshire/Humberside resulted in a loss to the latter region of about 40 practitioners - just a little more than the 1970 total shortfall in the region shown in table 6.3. Bearing in mind that all these practitioners were 'surplus' to the requirements of the South-East, it follows that had the loss of doctors through this route alone been stemmed, the average list size in Yorkshire/Humberside in 1970 would have been below the 2,500 mark without raising it above this level in the South-East. The exercise can be repeated for each region, with variable conclusions. But before any final conclusions can be drawn about the relationship between mobility patterns and manpower distribution the analysis must focus still more finely upon the gross movements which together make up the balance of internal regional migration. We start with the gross losses (columns 3 and 4 in table 8.1). Table 8.3 shows how the gross movement has affected each region in relation to every other region.

Some of the regions have lost more doctors through internal migration than others. In four regions (Yorkshire/Humberside, the East and West Midlands and the South-West) at least 30 per cent of doctors first practising there had subsequently moved out, compared with fewer than 20 per cent moving from the South-East and the NorthWest. There are clearer signs here of a link between past mobility and the current supply of medical manpower, for apart from the South-Western region, those with the highest gross percentage losses generally had the greatest shortfalls of GPs. It seems possible that the contemporary shortage of family doctors in certain regions of the country may lie primarily in the failure to retain doctors who have once practised there rather than in the inability to attract them in the first place. This possibility is reinforced by a closer examination of the data, for if the regions with a shortage of doctors in 1968 had each been able to retain enough of those GPs who had moved to the three southern regions to ensure that their average list sizes were in fact below 2,500,

then lists in these southern regions would still not have risen above the criterion, though they would obviously have risen somewhat. The conclusion is of some importance. The key to the persistent manpower problems in parts of the midlands and north may lie as much in seeking means of selective control over the outward flow of GPs as in the encouragement of more practitioners to move there. A successful long-term policy to dissuade young doctors who start out in the under-serviced regions from leaving for the attractions of the south would seem to stand a reasonable chance of easing the chronic shortage of family doctors in certain part of the country.

The pattern of regional losses in table 8.3 can be summarised by saying that doctors leaving each region have gone mainly to the South-East and to adjacent regions. Relative to size, however, it is only adjacent regions which are over-represented among the host regions, for the large numbers of doctors moving to the South-East merely reflects the fact that almost two-fifths of all principals in England live there. The pull of neighbouring regions is seen throughout the country. Most doctors moving out of the Northern region finished up in Yorkshire/Humberside and the North-West; those leaving Yorkshire went mainly to the North and the East Midlands; those from the West Midlands were attracted to the East Midlands, the North-West and the South-West; and so on. The destinations of doctors moving out of the South-East showed a similar tendency to transfer to nearby regions. Three adjacent regions (the East and West Midlands and the South-West) accepted the highest absolute numbers, and relative to its size the East Anglian share was also large. In the North and in Yorkshire, by contrast, the numbers of GPs from the South-East were low, and the North-West also received a small proportion relative to its size.

The components of the balance of internal regional migration: gross gains

Since the analysis in this chapter deals with a closed system, the losses from one region are the gains to another. The picture of internal migration is therefore completed by considering the gross regional gains resulting from the movement of doctors within the country (columns 5 and 6 in table 8.1). As with the losses, the gains vary considerably from region to region, but they differ somewhat from the expected pattern. Although the absolute number of doctors moving to the South-East has been large, this region, together with the South-West, the North and Yorkshire/ Humberside, has gained the lowest proportion of doctors - about a fifth in each case. Then come the West Midlands and the North-West with slightly larger proportional gains, and finally the remaining two regions with appreciably higher gross percentage gains: East Anglia (32 per cent) and the East Midlands (52 per cent).

The conclusion drawn in the previous section concerning the relationship between the movement of doctors out of regions and the current regional distribution of manpower is to some extent strengthened by the lack of a corresponding relationship between a region's attractiveness to mobile doctors and its present stock of practitioners. The capacity to retain existing practitioners appears in this context to be more important than the ability to lure doctors from elsewhere. The East Midlands, for example, has attracted a very high proportion of doctors from other regions and yet still has a severe shortage, whilst the South-West, which has attracted a much lower proportion of GPs from elsewhere, has maintained a consistently low average list size.

The sources from which different regions have drawn their gross gains are a mirror-image of the losses (table 8.3, reading down the columns). Just as most of the losses from each region were to the South-East and to neighbouring regions, so were most of the gains made from the South-East

and from adjacent regions. The Northern region, as an example, made most of its gains from the South-East, from Yorkshire/Humberside and from the North-West; most of the doctors moving into Yorkshire in turn came from the North-West, the South-East and the East Midlands; and so on. The upshot of these reciprocal moves is that much of the total activity of internal mobility is self-cancelling: doctors moving from A to B have, over a period of time, more or less been replaced by equal numbers of GPs making the reverse trip. Hence the net balance of internal migration (that is, when all reciprocal moves are excluded) has generally revealed much smaller gains or losses to each region than the gross movements might suggest. In six of the eight regions, for example, the change through the net balance of internal migration has been less than or only a little above 10 per cent of those first practising there, and in the other two regions the change has been below 20 per cent. But even though the net changes to each region have been quite small, they are considerably larger than the net change either between the north and south of the country, or between the better-doctored and the under-doctored regions. After excluding reciprocal moves the status quo has virtually been preserved in the proportion of practitioners in the northern and the southern regions of the country, and in those with average list sizes above and below 2,500. The slight movement that has occurred has been in favour of the northern regions, but the net gain is of the order of less than one per cent. It may be seen as a hopeful indicator, but it is a very small one.

Inward migration from countries outside England

One further process completes the total picture of regional migration: the inflow of doctors to England from other countries. Although the description of these people as 'immigrants' may suggest that they are foreign-born, this is not in fact the case. Most had been in general practice in other parts of the United Kingdom before moving to England: almost half had been in Scotland, a fifth in Wales, and a tenth in Northern Ireland. Only

about 20 per cent of them had come from outside the UK, and fewer than one per cent of all the respondents in the survey had been born and had started in general practice outside the United Kingdom.

It is estimated that some 1,300 principals practising in England at the time of the survey had started their careers in general practice (either as assistants, trainees or principals) outside the country. The number is by no means insignificant for it roughly equals the total number of family doctors in the Northern or East Midland regions. Columns 9 and 10 in table 8.1 show that, as a percentage of the number of doctors first practising in each region, these immigrants have been distributed fairly evenly throughout the country. The East Midlands and the North have attracted a higher than average proportion, and East Anglia has done rather less well than average, but there are no very large inter-regional differences in this respect. Even if they were optimally located, these immigrant doctors could not quite succeed in reducing the average list size in each region to 2,500, but they could go a long way towards doing so. For example, the 'excess' number in the three southern regions alone almost matched the total regional shortfall of GPs in 1970. Naturally this kind of numerical juggling depends upon an ideal distribution within each region which in reality could never be achieved, but the analysis illustrates the potential contribution which these doctors could make towards the problem of regional inequalities. They are a particularly important group because they are by definition highly mobile, and it is possible that with sufficient incentives they may be willing to move greater distances than doctors with stronger local ties.

The effects of time

Before examining the movement of doctors between geographical counties, some observations are in order about the consistency of these migration patterns through time. Ideally this can only be done by taking successive

cohorts of doctors starting in general practice at specified intervals and tracing their subsequent movements through to the completion of their careers. An alternative method from a cross-sectional survey would be to trace the gross gains and losses through internal movement and immigration for each region of doctors in different age groups. It would have the technical disadvantage of dealing with increasingly incomplete careers in the younger age groups; and it would also have the severe practical limitation in this survey of inadequate sample size. All that can be done, therefore, is to compare the net changes between first and current regions of practice for doctors in different age groups, and, if these changes are shown to be consistent, to assume that the gross inter-regional movements have not changed significantly either. Independent evidence about secular trends in gross mobility patterns is virtually non-existent. Brown and Walker (1971) found that the stability of GPs in East Yorkshire, Hampshire and Glamorgan increased during the decade 1955-65 after an unsettled period during the early years of the NHS, but since that time the turnover rate has once again been increasing in all three areas. Neither they nor any other known investigators, however, have examined regional gains and losses in a time perspective, and there is consequently no external yardstick against which to compare the validity of this somewhat sketch analysis.

Table 8.4 shows the current ages of the doctors at the time of the survey and the standard regions in which they first practised as GPs. The figures in this and the following table are percentages based upon weighted aggregate frequencies of the designated and non-designated samples. They reveal no major or consistent differences between doctors of different ages in the regional locations of their first practices. In other words there have probably been few significant changes over the last thirty or forty years in the extent to which the different regions have attracted GPs first starting up in general practice. This is a surprising and

significant finding for it means that a similar distribution might be expected to occur naturally in the future unless some deliberate changes are introduced. A second question is whether the direction of moves between first and current appointments has remained the same. This would be inferred if regions which have experienced net overall increases have also expanded within each age group, and, correspondingly, if regions with net losses have also lost among doctors of different ages. The actual trends can be seen by comparing the corresponding cells in tables 8.4 and 8.5. Within the limitations posed by the small frequencies they are consistent with the hypothesis of minimum changes over the working lifetimes of the doctors in the sample. In the East Midland region, for example, a higher proportion of doctors in each age group were currently working in the region than first practised there, and this even holds among the youngest group (under 40). The North, the North West, the South East and East Anglia (the other regions with a surplus on the overall balance of movement) also reveal increases within almost every age group, whilst the two regions with net overall losses (the South West and Yorkshire/ Humberside) experienced losses or a preservation of the status quo in almost each group.

It seems, then, that within the acknowledged limitations of the analysis, the net migration patterns between regions have probably changed little over the last forty years and it is likely that the gross patterns have changed little as well. There can be less certainty about this latter point, but at least there are no signs in the data that they have.

Migration patterns between counties

The data on regional migration patterns in table 8.1 are repeated for each individual county in table 8.6. As in the former table, the figures are population estimates for 1969, derived by inflating the sample frequencies

by the appropriate factor for the designated and non-designated samples in each county. The totals in columns 1, 9 and 11 are the same in the regional and county analyses (the very slight differences are merely the result of rounding off), but the gross gains and losses (columns 3 and 5) do not match partly because of the consequences of using regional inflation factors in one table and county factors in the other, and partly because gross gains and losses from a region will only equal the losses and gains from its constituent counties if all doctors moving into and out of the counties also moved into and out of the region. The latter discrepancy is similar to that described in chapter 5, whereby the shortfall of doctors at the regional level is always lower than the total shortfall for the counties. Most individual counties are represented in the table; and the East and West Ridings of Yorkshire have necessarily been combined in a single county.

The most important conclusion from the data on inter-county movements is that even at this level there has probably been sufficient potential in the observed migration patterns to ensure a currently equal distribution of doctors. The argument that certain counties have been basically unable to attract enough doctors to meet their current needs is difficult to sustain, for even allowing for the standard errors in the population estimates the gross losses of doctors from each county have been considerably in excess of the current shortfalls. As with the regions, the problem appears to be as much one of retaining GPs practising in certain areas as of enticing them there in the first place. This bald assertion, though fundamentally valid must nevertheless be modified as a guide to pragmatic action. As in the regions, the relationship between past losses and present shortfalls is the outcome of long-term trends, for although the outflow of family doctors from each county has exceeded the current deficit, the total losses have built up over a long period of time. Even if the outward movement of GPs from certain counties could somehow be controlled it would still require several years before significant improvements in doctor/patient ratios were visible.

At best, therefore, the implications of this analysis are long-term, and immediate improvements need to be sought through alternative channels. Further, the problem of retaining doctors in critical counties (and regions also) is primarily one of providing sufficient practice opportunities, for many of the doctors who had left an area would obviously not have gone there in the first place unless a vacancy had been created by the emigration of an existing practitioner.

A second major conclusion from the study of inter-county migration is that, as with the regions, counties appear to differ in the extent to which their inability to retain doctors has contributed to their overall shortage. Some counties with very low rates of outward movement have still maintained quite large average lists, and although the shortage in these places could theoretically have been eliminated by reducing the losses still further, this would probably have been extremely difficult if not impossible to achieve. In these counties the most hopeful future developments are likely to come from increasing the intake of family doctors (from whatever source) rather than stemming the outward flow still further. There seems, moreover, to be an interesting north/south split in this respect. Counties in the northern regions have generally experienced a below-average loss of doctors moving elsewhere, and it is unlikely that the retention rate in these counties could be improved by any significant amount. Durham, Lancashire and the East and West Ridings are examples of northern counties which, despite a below-average loss, still experience large average lists. The particular problem in these counties seems to be the low capacity for attracting doctors moving from practices in other counties or immigrant doctors from outside England. In the South and the Midlands, on the other hand, the problem is more one of controlling losses than of stimulating gains, for although the under-doctored counties in these regions have generally experienced large gains of incoming doctors, they have also suffered high rates of outward movement of those first practising in them.

Mobility and manpower distribution

In this concluding section an attempt is made to draw some of the themes of the chapter together by relating the mobility patterns described so far to shortages in the distribution of general practitioners in 1969. (For technical reasons it has not been possible to carry out this particular exercise with 1970 data, but any changes during are probably quite small.) An area may be short of doctors either because it has attracted a lower-than-average proportion of those entering general practice for the first time, or because it has failed to get a fair share of practitioners moving from other areas or coming into the country from outside, or because it has lost an above-average number of doctors starting in that area but subsequently moving elsewhere. In this section the effect on all the regions and counties in 1969 has been calculated if each had achieved an average performance on each type of movement. The results are set out in table 8.7. Regions and counties listed in the 'inadequate' column are those which, in spite of having an actual list size above 2,500 would, nevertheless, have been below this figure in 1969 if they achieved an average performance on each growth factor alone. Conversely, those in the 'super-adequate' column would still have enjoyed the average lists below 2,500 even if their performance on each factor alone had been no more than average. By concentrating on areas which would be thus affected by an average achievement on each single factor the major strengths and weaknesses of the various regions and counties can be highlighted and the error avoided of placing too much significance upon subtle changes revealed on the basis of rather small numbers. In practice, however, the situation in any region or county is obviously most likely to change as the result of partial improvement on several or all of the factors.

Table 8.7 shows how the flows of general practitioners through the country have affected list sizes from place to place. Results of this kind do not of themselves resolve the problem of under-doctored areas, but by

contributing towards a clearer understanding of its nature and causes they should provide a better basis on which to build a policy. It is hoped this chapter has at least demonstrated the potential value of a systematic, continuous monitoring of the geographical movements of GPs, the results of which would be more valid than the limited analyses offered here. For however interesting the results may be, the data contain a number of imperfections. One is the inability to plot movements between sub-regional units with any confidence. Another is the problem of sorting out time trends in cross-sectional data, although separate checks on the migration patterns described in this chapter indicate that the major routes have probably changed little since 1948. A more serious deficiency arises from the definition of 'losses' and 'gains' which were imposed by the cross-sectional nature of the study. The conclusion in the preceding sections that the gross numbers of doctors moving out of each region and county has always exceeded the current shortfalls in those units may be questioned on the ground that many of those moving out would only have moved in initially as replacements for other departing practitioners. It may therefore be considered misleading to regard the total number of doctors first practising in any unit as a cumulative statistic, implying that by retaining them all there would now be a sufficient stock of practitioners. The argument is a reasonable one, which could not be employed against longitudinal data collected from an on-going surveillance programme. Yet the fact remains that the total losses from each unit represent the gross number of doctors who were once practising there but are no longer doing so. The probability that they might not have gone in the first place unless another doctor had moved out does not invalidate the fact that they did still go, however, undesirable or unattractive the place might be. There does not appear, therefore, to be any region or county that is inherently unable to attract enough family doctors to meet its needs (at least when needs are defined in terms of doctor/patient ratios) provided the practice opportunities are available.

Table 8.1 Losses, gains and the net balance of internal migration; immigration; and total balance of movement, by standard regions

(Population estimates for England, 1968)

Standard region	(1) Doctors first practising in region	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
			Internal migration						Immigrant doctors from abroad and unknown regions		Doctors currently practising in region (1968)	
			Losses		Gains		Net balance					
	no.	(=100%)	no.	%	no.	%	no.	%	no.	%	no.	%
North	1250	100	293	23.4	234	18.7	-59	-4.7	130	10.4	1321	105.7
Yorkshire/ Humberside	1757	100	537	30.5	343	19.5	-194	-11.1	127	7.2	1690	96.3
East Midlands	1187	100	421	35.4	613	51.6	+192	+16.2	122	10.3	1501	126.4
East Anglia	624	100	170	27.2	201	32.2	+31	+5.0	35	5.6	690	110.6
South-East	6495	100	999	15.4	1247	19.2	+248	+3.8	558	8.6	7301	112.4
South-West	1871	100	727	38.8	416	22.2	-311	-16.6	139	7.4	1699	90.9
West Midlands	1940	100	632	32.6	502	25.9	-130	-6,7	132	6.8	1942	100.1
North-West	2185	100	389	17.8	612	28.0	+223	+10.2	198	9.1	2606	119.2
Total England	17309	100	4168	24.1	4168	24.1	0	0	1441	8.3	18750	108.3

Note: All percentages are based on the number of doctors first practising in each region

Table 8.2 Net balance of internal movement between standard regions

(Population estimates for England, 1968)

	North	Yorkshire/ Humberside	East Midlands	East Anglia	South-East	South-West	West Midlands	North-West	Total
North		-2	-2	-2	-62	+23	-1	-13	-59
Yorkshire/ Humberside	+2		-9	+7	-41	-3	-22	-128	-194
East Midlands	+2	+9		+1	+79	+11	+93	-3	+192
East Anglia	+2	-7	-1		-9	+20	0	+26	+31
South-East	+62	+41	-79	+9		+211	+64	-60	+248
South-West	-23	+3	-11	-20	-211		-59	+10	-311
West Midlands	+1	+22	-93	0	-64	+59		-55	-130
North-West	+13	+128	+3	-26	+60	-10	+55		+223

Note: The table is read across the rows. Thus, the Northern region shows a net loss of 2 doctors to Yorkshire/Humberside, the East Midlands and East Anglia, a net loss of 62 to the South-East, a net gain of 23 from the South-West, and so on.

Table 8.3 Standard region of first and current practices

(Population estimates for England, 1968)

Standard region of first practice	Standard region of current practice (1968)								
	North	Yorkshire/ Humberside	East Midland	East Anglia	South-East	South-West	West Midland	North-West	Total
North	957	54	20	2	114	20	19	64	1250
Yorkshire/ Humberside	52	1220	72	19	106	40	50	198	1757
East Midlands	18	63	766	19	156	20	60	85	1187
East Anglia	-	26	20	454	85	29	10	-	624
South-East	52	65	235	76	5496	217	184	170	6495
South-West	43	37	31	49	428	1144	139	-	1871
West Midlands	18	28	153	10	248	80	1308	95	1940
North-West	51	70	82	26	110	10	40	1796	2185
Outside England	113	117	112	33	480	119	132	184	1290
Not known	17	10	10	2	78	20	-	14	151
Total	1321	1690	1501	690	7301	1699	1942	2606	18750

Table 8.4 The standard region of first practice and present age of doctors

(Percentages based upon weighted aggregates of designated and non-designated samples)

Standard region of first practice	Present age				Total
	Less than 40	40-49	50-59	60 or more	
North	7.5	7.8	8.5	7.2	7.8
Yorkshire/ Humberside	10.8	9.8	11.5	10.1	10.5
East Midlands	7.0	6.9	6.0	5.9	6.5
East Anglia	4.6	5.8	4.7	2.5	4.8
South-East	31.8	29.9	28.5	34.6	30.6
South-West	10.2	13.1	10.4	8.4	11.1
West Midlands	12.1	10.9	8.7	10.1	10.5
North-West	10.2	8.7	12.3	11.8	10.5
Other	5.6	6.5	8.3	7.2	6.9
Not known	0.3	0.6	1.1	2.1	0.9
No. of doctors (=100%)	377	642	468	234	1,721

Percentages calculated down columns

Table 8.5 The standard region of current practice and present age of doctors

(Percentages based upon weighted aggregates of designated and non-designated samples)

Standard region of current practice	Present age				All ages
	Less than 40	40-49	50-59	60 or more	
North	8.6	8.4	9.6	6.8	8.5
Yorkshire/ Humberside	10.8	10.3	11.5	9.7	10.6
East Midlands	9.9	8.4	6.6	8.4	8.3
East Anglia	5.6	6.5	7.0	4.6	6.2
South-East	30.6	31.8	32.3	39.7	32.8
South-West	9.4	11.5	10.6	10.1	10.6
West Midlands	13.2	12.0	8.9	9.7	11.1
North-West	11.8	11.1	13.4	11.0	11.9
No. of doctors (=100%)	377	642	468	234	1,721

Percentages calculated down columns

Table 8.6 Losses, gains and the net balance of internal migration; immigration; and total balance of movement by geographical counties (Population estimates for England, 1968)

Geographical county	(1) Doctors first practising in county	(2)	(3) Internal migration: Losses	(4)	(5) Internal migration: Gains	(6)	(7) Internal migration: Net balance	(8)	(9) Immigrant doctors from abroad and unknown regions	(10)	(11) Doctors currently practising in county (1968)	(12)
	no.	(=100%)	no.	%	no.	%	no.	%	no.	%	no.	%
Cumberland	111	100	28	25.2	42	37.8	+14	+12.6	9	8.1	134	120.7
Durham	455	100	153	33.6	152	33.4	-1	-0.2	67	14.7	521	114.5
Northumberland	425	100	128	30.1	35	8.2	-93	-21.9	15	3.5	347	81.6
Westmorland	32	100	5	15.6	12	37.5	+7	+21.9	-	-	39	121.9
Yorkshire,N.Riding	238	100	105	44.1	97	40.8	-8	-3.4	49	20.6	279	117.2
Yorkshire, E.& W. Ridings	1698	100	478	28.2	349	20.6	-129	-7.6	118	6.9	1,687	99.4
Derbyshire	256	100	89	34.8	123	48.0	+34	+13.3	52	20.3	342	133.6
Leicestershire	249	100	120	48.2	151	60.6	+31	+12.4	13	5.2	293	117.7
Lincolnshire	293	100	140	47.8	136	46.4	-4	-1.4	37	12.6	326	111.3
Northamptonshire	141	100	43	30.5	76	53.9	+33	+23.4	-	-	174	123.4
Nottinghamshire	234	100	76	32.5	164	70.1	+88	+37.6	39	16.7	361	154.3
Cambridgeshire	102	100	10	9.8	25	24.5	+15	+14.7	12	11.8	129	126.5
Huntingdonshire	38	100	8	21.1	29	76.3	+21	+55.3	11	28.9	70	184.2
Norfolk	248	100	75	30.2	77	31.0	+2	+0.8	11	4.4	261	105.2
Suffolk	160	100	29	18.1	100	62.5	+71	+44.4	-	-	231	144.4
Bedfordshire	271	100	225	83.0	124	45.8	-101	-37.3	-	-	170	62.7
Berkshire	305	100	132	43.3	75	24.6	-57	-18.7	11	3.6	259	84.9
Buckinghamshire	229	100	97	42.4	75	32.8	-22	-9.6	10	4.4	217	94.8
Essex	371	100	157	42.3	216	58.2	+59	+15.9	63	17.0	493	132.9
G.L.C.	2655	100	675	25.4	576	21.7	-99	-3.7	267	10.1	2823	106.3

Table 8.6 (continued)

Geographical county	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Hampshire	672	100	217	32.3	196	29.2	-21	-3.1	34	5.1	685	101.9
Hertfordshire	298	100	133	44.6	166	55.7	+33	+11.1	27	9.1	358	120.1
Kent	598	100	219	36.6	373	62.4	+154	+25.8	17	2.8	769	128.6
Oxfordshire	116	100	72	62.1	76	65.5	+4	+3.4	31	26.7	151	130.2
Surrey	784	100	169	21.6	184	23.5	+15	+1.9	44	5.6	843	107.5
Sussex	424	100	194	45.8	305	71.9	+111	+26.2	16	3.8	551	130.0
Cornwall	194	100	92	47.4	80	41.2	-12	-6.2	-	-	182	93.8
Devon	382	100	141	36.9	142	37.2	+1	+0.3	34	8.9	417	109.2
Dorset	219	100	103	47.0	44	20.1	-59	-26.9	-	-	160	73.1
Gloucestershire	596	100	300	50.3	120	20.1	-180	-30.2	46	7.7	462	77.5
Somerset	314	100	183	58.3	146	46.5	-37	-11.8	16	5.1	293	93.3
Wiltshire	143	100	41	28.7	54	37.8	+13	+9.1	27	18.9	183	128.0
Herefordshire	37	100	8	21.6	35	94.6	+27	+73.0	-	-	64	173.0
Shropshire	133	100	74	55.6	84	63.2	+10	+7.5	-	-	143	107.5
Staffordshire	666	100	364	54.7	285	42.8	-79	-11.9	73	11.0	660	99.1
Warwickshire	849	100	454	53.5	356	41.9	-98	-11.5	63	7.4	814	95.9
Worcestershire	123	100	31	25.2	146	118.7	+115	+93.5	17	13.8	255	207.3
Cheshire	518	100	136	26.3	190	36.7	+54	+10.4	26	5.0	598	115.4
Lancashire	1737	100	455	26.2	543	31.3	+88	+5.1	180	10.4	2005	115.4
Total England	17314	100	6159	35.6	6159	35.6	0	0	1435	8.3	18749	108.3

Note: All percentages are based upon the number of

Table 8.7 Adequacy of regions and counties on growth factors

(See text page 216 for details)

Growth factor	Inadequate	Super-adequate
Capacity to attract new doctors	EAST MIDLANDS, NORTH-WEST, Durham, Derbyshire, Leicestershire, Northamptonshire, Huntingdonshire, Essex Hertfordshire, S.E. London/Kent Worcestershire, Lancashire, Nottinghamshire	SOUTH-WEST, Northumberland, Hampshire, Inner London, South West London/Surrey Cornwall, Dorset Gloucestershire, Somerset, Shropshire, Norfolk
Capacity to attract mobile doctors	NORTH, YORKSHIRE/HUMBERSIDE, West Riding of Yorkshire	EAST ANGLIA, Cumberland, Cornwall, Devonshire, Somerset Wiltshire
Capacity to attract immigrant doctors	Buckinghamshire	Cambridgeshire, Devonshire
Capacity to retain doctors	YORKSHIRE/HUMBERSIDE, EAST MIDLANDS, WEST MIDLANDS, Bedfordshire, Buckinghamshire, Essex Hertfordshire, Leicestershire, Staffordshire, Warwickshire	Westmorland, Norfolk, Hampshire, Herefordshire

Standard regions are in capital type

CHAPTER NINE

THE IMPORTANCE OF COMMUNITY TIES

Results of the kind presented in the previous chapter are important in reaching a clearer understanding of the nature of the problem of the designated areas, but they offer few clues about possible remedial action. It is instructive to know that the shortage of doctors in the East Midland counties is closely linked to the relatively low number of doctors first entering general practice who choose to go there, but this fact alone casts little light upon the steps which might effectively be taken to remedy the deficit. A rational course of action would first require some understanding of the reasons why younger doctors have been seemingly reluctant to enter general practice in the East Midlands. In the search for possible explanations this example of the East Midlands itself offers a clue, for it may be no coincidence that this was also the only region at the time of the survey without a medical school. (The medical faculty at Nottingham University did not accept its first students until 1970.) The absence of a medical school means that doctors in training have little opportunity of acquainting themselves with practice conditions within the region or of developing more general social contacts. The lack of such opportunity may later be important, for during his years at medical school the student will probably establish links with the local medical community and may build up an impression of practice conditions within the vicinity of the school which will subsequently be of some significance to him in evaluating possible areas of work. But at the same time other conflicting constraints may be operating on the student. He may be under some pressure to return to his family home area upon qualifying, especially if his father or some other relative is already practising there and has hopes of passing the practice on to the next generation. If he is married or engaged, then the further question of his wife's or fiancee's wishes and preferences may have to be incorporated into the decision of where to practise. In short, a strong relationship may exist between the places where GPs choose to work and

the areas where they were born, grew up and were educated. It is with this relationship that this chapter is concerned.

Previous research

It seems often to have been assumed that doctors (especially general practitioners) tend to settle in the vicinity of their medical schools, and that consequently the careful siting of new medical schools and the expansion of existing ones would offer a reasonable long-term solution to recruitment problems in certain areas. If, the argument runs, there is an increase in the number of students who are trained in a particular locality, there will also be an increase in the number who choose to settle there upon qualifying (Hill, 1964). The American evidence and counter-evidence relating to the argument has been discussed in chapter 1. For example, the study by Weiskotten *et al* (1960) showed that 46 per cent of all graduates from US medical schools in 1950 were subsequently practising in the same state in which their medical school was located, and 15 per cent were actually practising in the same city. A somewhat higher proportion of graduates, however, were located in the state or city in which they lived before their entry to medical school (58 and 25 per cent respectively), which lead the authors to conclude that the doctor's home area exerted a stronger influence on his choice of practice location than the area of his medical school.

The belief that the medical school continues to attract doctors beyond their graduation has also been expressed in Britain. The Gillie Report in 1963, for instance, commented that 'since there is a tendency for doctors to enter general practice in the part of the country in which they were trained, new medical schools and medical centres for post-graduate training should, as far as possible, be in or close to the under-doctored areas' (Central Health Services Committee, 1963). The argument was repeated in the following year by the Working Party on General Practice. 'Doctors tend to settle in the areas in which they were trained and we think it important that the uneven

distribution of general practitioners should be borne in mind when considering the location of new medical schools and the expansion of existing ones' (Working Party, 1964). Neither report cited any evidence for the argument, although both committees would have had access to the Medical Practices Committee's analysis of the Provisional Register for 1960, indicating that doctors normally settled in and about the areas where they had been educated (BMJ, 1962). Probably the first major survey of the settlement patterns of doctors was published in 1967 by Last. His results certainly confirmed the widespread belief that medical schools tend to supply GPs to adjacent rather than to remoter regions, but he also found that a closer association existed between the places where GPs worked and the areas of their family homes at the time they were students. In fact, just over half (51 per cent) of all the general practitioners in this nationwide sample were practising in the same standard region as their family home. Last concluded that 'regions short of doctors would be more effectively, expediently and economically helped to overcome the shortage by a larger recruitment of students from these regions, rather than by establishing medical schools there'.

The Royal Commission on Medical Education (1968), echoing Last's conclusion, commented that 'the argument about settlement introduces unnecessary and misleading considerations' into decisions about the siting of new medical schools. The Commission pointed out that although some of the plans which had been submitted to it about the location of new schools were based on the assumption that medical graduates tended to practise in the area of their medical schools, there was in fact no substantial evidence to support it. Last's material was used to show that the evidence which did exist pointed the other way, and indicated that general practitioners, if not consultants, preferred to return to their home areas to work. However, the Commission did think that the supply of general practitioners to an area 'may well be heavily dependent on the extent to which boys and

girls from that area are attracted into medicine', and that one way of attracting them may be to set up a local medical school. It would appear, then, that both home area and medical school are likely to be significant factors in the choice of a practice location, but whether they act independently of each other has yet to be established.

The more intensive studies by Brown and Walker in East Yorkshire, Glamorgan and South Hampshire confirm this conclusion (1971; 1973). They found that 41 per cent of the 260 doctors interviewed in these three localities had parents living in the same region (the comparable figure from Last's national survey was 51 per cent, although definitions do not exactly match), and 24 per cent had parents in the same town or village. Younger doctors were more likely to have returned to their home areas than those graduating before the war, and the Welsh doctors had closer connections than those in either of the English regions. Moreover, 68 per cent of all GPs in the sample were in the area of their first choice. At the same time, however, the results showed that the medical school also represented a considerable constraint on the range of a doctor's choice: by 1966 a third of the general practitioners in the East and West Ridings were Leeds graduates, and in Glamorgan the proportion of graduates from the Welsh National School of Medicine was 50 per cent. Brown and Walker concluded that 'recruitment of general practitioners is likely to be easiest in areas that send substantial numbers of schoolboys and girls to medical school ..... We cannot dismiss the need to bear this factor in mind in siting new medical schools.'

The influence of community ties: the national picture

This section examines the relationship between home area, medical school and practice location. (Family home area is defined by the question: 'Where did you spend most of your time before going to University?') In the

designated sample almost two-fifths (39 per cent) of respondents whose family homes had been in England were practising in the same county as their family home, and 60 per cent were practising in the same standard region (table 9.1). The corresponding proportions in the non-designated sample were 37 per cent and 60 per cent. (It is important to note that these figures apply only to respondents whose family homes had been in England. Since the survey was restricted to GPs in England it would clearly have been misleading to include all respondents in this analysis as they would not have been at equal risk of being counted in their home localities.) The regional figures correspond well with the equivalent proportion in Last's survey (51 per cent), even though his definition of family home differed somewhat from ours, and they indicate the substantial attraction which a doctor's home area has for him in later life. But a similar attraction is exerted by the medical school, for almost identical proportions of respondents were, at the time of the survey, practising in the counties and regions of the teaching hospitals at which they trained as undergraduates. In the designated sample 32 per centof those trained in England were currently practising in the same county and 60 per cent in the same region as their medical school, and the corresponding proportions in the non-designated sample were 27 per cent and 54 per cent (table 9.2).

It therefore follows that many of the doctors must have trained not far from their homes, and the question arises of whether the attraction of each is independent of the other. If the influence of the medical school is independent of the home area then the proportionof respondents practising in the vicinity of their schools would be no different as between those whose family homes had and had not also been in the same region as their medical schools. In fact the results show that this is not the case, for the chances of a doctor remaining in the region of his medical school were much higher if that had also been his family home region. For example, the proportions of doctors in the designated sample practising in the same

region as their medical school varied from 70 per cent among those trained in their home region to only 29 per cent among those trained elsewhere (table 9.2). In the non-designated sample the corresponding figures were 65 per cent and 29 per cent, showing an equally wide range. (In both samples the percentages are based upon the number of respondents whose family homes and medical schools had been in England. The reasons for this have already been given.) Similar results were to be seen at the county level also. The proportion of designated doctors practising in the same county as their medical school ranged from 48 per cent among those trained in their home county to only 16 per cent among those trained elsewhere, and the corresponding figures in the non-designated sample were 46 per cent and 12 per cent.

These results demonstrate unequivocally that although the majority of GPs graduating from English universities settle within the regional vicinity of their universities, the attraction of the medical school is much greater when it also happens to be located in the region of the family home. But the converse question, hitherto unanswered in previous studies, is whether it is not equally the case that doctors are more likely to settle in the vicinity of their family home if that also happens to be where they were trained. The answer is again in the affirmative. The proportion of designated doctors working in the same standard regions as their family homes varied from 70 per cent of those trained in their home regions to only 32 per cent of those who left their home regions to go to medical school (table 9.1). Similarly, the proportions of non-designated doctors working in their home regions were 65 per cent and 48 per cent respectively as between those who were and were not also educated in their home regions. As before, the same trends applied also at the county level. In short, students who had left their home regions and counties to be trained were less likely to have returned to them as GPs than those attending a medical school in their home regions and counties.

The general hypothesis which emerges may be stated thus: the more connections a doctor has with an area the more likely he is to return to it or remain in it to practise. If the hypothesis is valid we should expect to find the proportion of doctors living in their home areas to increase still further if, as well as being educated there, they were also born in those places.

Just over half of all the English-born doctors in the survey were living in the regions in which they had been born. The proportion was similar in the designated and non-designated samples (58 per cent and 52 per cent respectively). As predicted by the hypothesis, respondents were much more likely to be working in the regions of their birthplace if those had also been their family home regions. In the designated sample the proportion of doctors practising in their birth regions varied from 63 per cent of those whose family homes were also in the same region to only 17 per cent among those who had been brought up elsewhere. In the non-designated sample the respective proportions were 59 per cent and 14 per cent. The differences are, obviously, highly significant, and are seen at the county level also. The important question, however, is whether or not the converse holds good: is the influence of home area dependent upon birthplace? Are the doctors more likely to be living in their home regions if they had also been born there than if they had been born elsewhere? The hypothesis predicts a positive answer, since birthplace adds one further connection to that of upbringing and education; and the data generally bears it out. The proportions of designated doctors practising in their home regions were 63 per cent and 43 per cent respectively as between those whose birthplace and home areas were and were not in the same region, and in the non-designated sample the proportions were 59 per cent and 53 per cent respectively.

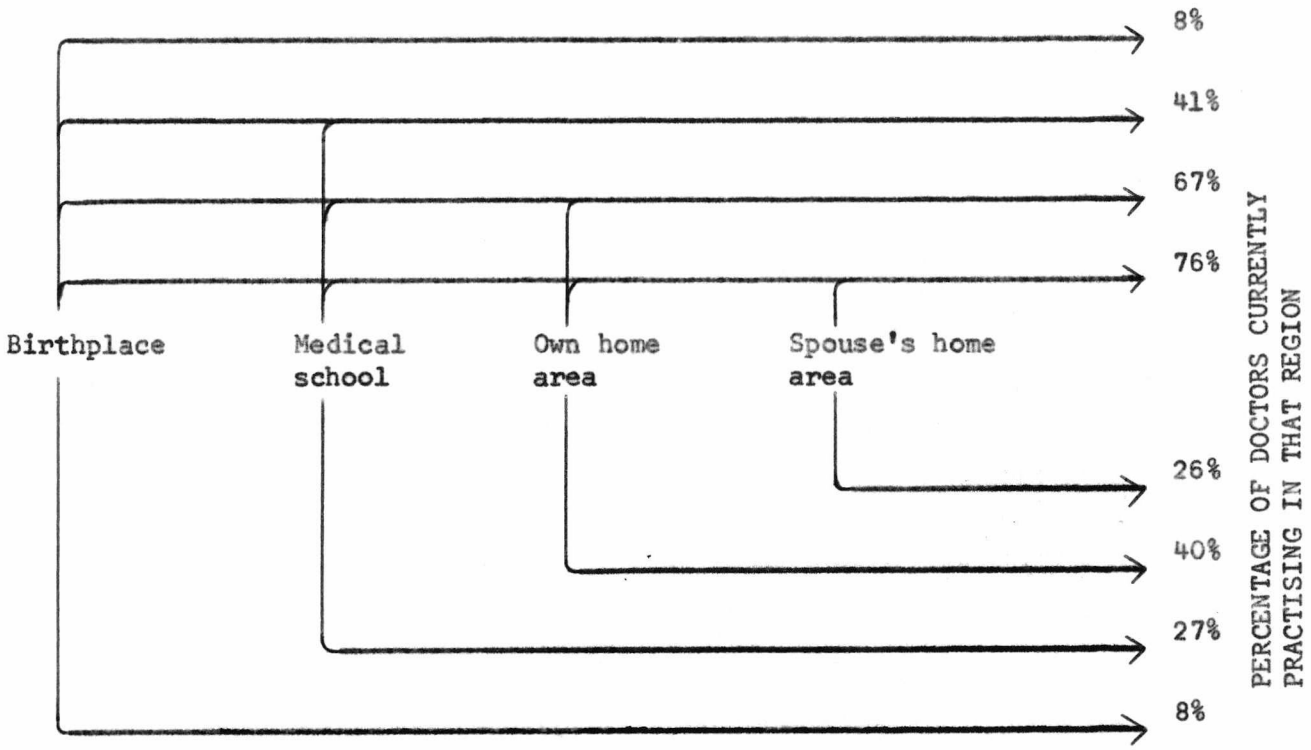
Although a doctor's birthplace has considerably less influence than either the home area or the medical school, it nevertheless increases the

likelihood that a GP will return to or remain in a familiar area by adding one more link to the chain which keeps him. The significance of each of these links is summarised in table 9.3, which shows the proportions of respondents living in the same regions as their birthplace, home area and medical school under the various possible combinations.

Two major conclusions are drawn from this table. First, the proportion of GPs practising in any region increased in regular fashion as the total number of links with the region accumulated. In each case the proportion was lowest among doctors with just one link (whether that link was of birth, upbringing or education), and highest among those with all three links. Thus of doctors whose only link with a region was through their birthplace fewer than one in ten (8 per cent) were currently practising in that region. When one extra link is added (whether home or medical school) the proportion rises to at least 40 per cent, and when all three links are present more than two-thirds (67 per cent) of the respondents were accounted for.

The second principal conclusion suggested by table 9.3 is that each link has a differential effect upon the probability of a doctor practising in the region in question. The influence of birthplace appears to be the slightest, for it has the lowest retention rate in isolation and the least incremental effect when added to either of the other two. By similar reasoning the home area has the strongest pull, with the medical school occupying an intermediate position. Schematically the relative influence of each link is illustrated in the diagram overleaf, adding for this purpose the extra link of the spouse's family home area which is discussed in greater detail in chapter 10.

CUMULATIVE EFFECT



INDIVIDUAL EFFECT

(Note: Percentages are based on weighted aggregates of both samples)

This analysis of the relationship between home area, location of medical school and choice of practice area adds a further dimension to the results of previous studies. The results confirm the importance of encouraging more young people in under-doctored areas to consider medicine as a career, because wherever they are trained at least a third of them can be expected to return to their home regions. But it has also been shown that this proportion is likely to double if students can receive their medical education in their home regions, and that is the rationale for locating new medical schools and expanding existing ones in such areas. The results are consistent with Last's (1967) conclusion that the influence of the home is greater than that of the university, but they do not support the Royal Commission's (1968) argument about the irrelevance of the siting of medical schools to manpower policy. The survey has shown that the influence of the home area and the medical school are interdependent, and the effects of both should be considered equally.

The influence of community ties: the regional and county picture

The conclusions in the previous section were pitched at the level of the country as a whole: the next step is to examine their validity in relation to each region and county. If the conclusion is valid that doctors who attend medical schools in their home regions are more likely to be practising in those regions than doctors who move away for their training, then we should expect to find that those regions in which a high proportion of students had trained 'at home' would also have the highest rates of retention of home-bred doctors. The figures are set out in table 9.4, and are confined to respondents whose family homes had been in England. The first column shows, for each region, the percentage of respondents who had been to a medical school in the same region as their family home. The South-East expectedly had the highest proportion of doctors training in their home region (88 per cent); the North, Yorkshire/Humberside, the North-West and the West Midlands each had between 60 and 70 per cent; and in the South-West the proportion was 27 per cent. No doctors with family homes in the East Midlands had received their medical education there, and the very low proportion in East Anglia is due to the fact that, wherever possible, Cambridge graduates were classified by the location of their clinical school. These regional variations partly reflect the capacity of the medical schools, but it would nevertheless be possible in principle for a higher proportion of students to be trained in their home regions than has hitherto been the case, for between a fifth and a third of undergraduate places in each region usually go to students originating from other regions. Since the chances of a GP practising in his family home area increase if he also attends a medical school nearby, this might be a possible way of using existing resources to encourage more GPs to settle in selected regions.

Next, it is expected that regions training a high proportion of indigenous students would also contain a high proportion of GPs practising

in their home regions. The figures in the second column of table 9.4 show that the retention rate was indeed highest in the South-East, where 65 per cent of doctors with family homes in the region were still practising, and lowest (by a considerable margin) in the East Midlands (39 per cent). Between these extremes the other regions ranged much as expected, although in most cases the rank positions are determined by quite small percentage variations. The major exception is the South-Western region, which despite losing a very high proportion of students to other regions to be trained has nevertheless succeeded in attracting back a large number of those originating from the region.

The results of the analysis at county level are much more speculative, partly because of the small sample frequencies in several cases and partly because very few counties actually contain medical schools. The best results are those relating to the proportion of doctors with family homes in each county who had, at the time of the survey, returned to them as GPs. Counties in the South-East generally had low proportions. Only Hampshire among these counties had a retention rate above the average for all counties (37 per cent), whilst no more than one in ten of those with family homes in Oxfordshire, Bedfordshire and Buckinghamshire had returned to these counties. Counties in the Northern region, by contrast, have had much more success, for all except the North Riding have managed to retain at least half the doctors with family homes in them. In Yorkshire/Humberside, the East and West Ridings together have kept a higher proportion of home-produced doctors (57 per cent) than any other county except Cornwall, contrasting dramatically with the low figure of 16 per cent in the North Riding. All the constitutent counties in the East Midlands have followed the regional trend of retaining a fairly low proportion of doctors with family homes in them, whilst those in East Anglia have succeeded in keeping at least the national average proportion. So also have Devon, Cornwall and Dorset in the South-West, although the remaining three counties in this region have done less well. The larger

counties in the West Midlands have had difficulty in retaining reasonable numbers of doctors with family homes in them: the proportion was only a third in Warwickshire and Staffordshire and no more than a quarter in Worcestershire. Finally, in the North-West, Lancashire has retained proportionately twice as many home-bred doctors as Cheshire, which is doubtless due in part to the presence of two medical schools in Lancashire.

The relationship between attendance at a local medical school and the probability of practising in the vicinity of the family home is obviously much less clear at county than at regional level. Nevertheless with the exception of those counties from which fewer than ten of the survey doctors had originated, most counties with medical schools had a higher proportion of home-bred doctors than those without. It seems safe to conclude that the presence of a local medical school usually ensures that a good proportion of medical students from the area will eventually return as GPs.

The influence of community ties: the relationship to the distribution of manpower

The next crucial question is whether the trends described in the preceding sections have affected the distribution of family doctors. Has the failure of certain regions and counties to retain an adequate proportion of home-based doctors been a significant factor in the manpower shortage in those areas? The results discussed above suggest that a link may exist at both regional and county level between the capacity to retain home-bred doctors and the current availability of manpower. The link is revealed most explicitly in the East Midlands and North-West, which not only stand out by virtue of the relatively low numbers of indigenous doctors taking a first appointment in them (the third column in table 9.4), but are also the two regions in which a low capacity to attract doctors entering general practice has been a major reason underlying their current

shortages (table 8.7). The younger doctors whom these regions have failed to attract may, in other words, be those whose family homes were in the regions but who took a first sppointment elsewhere. If both regions had retained merely an average proportion of GPs taking a first appointment in their home regions the extra doctors gained would have offset the 1970 deficits completely. Moreover the situation in the East Midlands is a clear example of how recruiting problems can be intensified by the lack of a medical teaching centre, and it is expected that the opening of the medical school at Nottingham will exert a significant long-term influence on staffing patterns in the region.

A similar conclusion can be drawn from the county data. Eleven counties were listed in table 8.7 in which the failure to attract enough doctors entering general practice has been a principal reason underlying their current shortage of GPs. In each of these eleven counties the proportion of doctors taking a first appointment in their home counties was lower than average, with the exception of Durham/Northumberland and Lancashire (which contain medical schools) and Huntingdonshire (which has only two cases and can therefore be disregarded). Having shown that the shortage of doctors in many counties has resulted mainly from the failure to attract into general practice, the problem can now be located more specifically in the low proportions of doctors originating from those counties who have returned to them as GPs. Whilst it is impossible to base any firm conclusions on a small number of cases it is probably no coincidence that the two counties in this group containing medical schools have generally shown much higher retention rates than those without an undergraduate medical centre. It seems clear from all the evidence that a medical school which a doctor attends is likely to be an important influence in his choice of a practice area, and that in some cases it may be a contributory factor in the maldistribution of GPs. These results are quite contrary in their implication to the assertion of the Royal Commission (1968), that the

siting of new medical schools is irrelevant to the problems of manpower distribution. The survey data indicate that a promising way of bolstering recruitment to general practice in many under-doctored areas is by encouraging more doctors originating from those areas to return to them when qualified, and further, that one way of promoting this is to ensure that they do not have to travel far from home in order to be trained.

Which doctors return home?

Which doctors are most likely to return to their home areas as GPs? Table 9.5 sets out some characteristics of those respondents with family homes in England who at the time of the survey were living in the same county and region as their family home. Three of the characteristics discriminated decisively between those who had returned home and those who had not. The first concerns the timing of a doctor's marriage relative to his career in general practice: respondents in both samples who had married before entering general practice were rather more likely than the remainder to be working away from their home regions and counties. The spouse's influence, discussed in the next chapter, may be a factor here. The second discriminating characteristic is paternal occupation. Respondents were asked to record their fathers' occupations at the time they (the respondents) were born, and these were then classified on the Registrar-General's social class scale, and also according to their relationship with medicine. Those whose fathers had also been doctors were more likely to be practising in their home counties than those with fathers in other occupations, and were less likely to be practising in a different region. The difference is consistent in both samples, but most marked in the non-designated sample. Associated with this is the fact that doctors originating from social class I homes contained relatively more of those returning to their home counties and regions than respondents with fathers in other social classes. The many important contacts which a newly qualified doctor may have in his home area by virtue of his father's

practice is probably sufficient explanation for his increased incentive to return, especially if there is the prospect of a partnership in the family practice.

The influence of age is more difficult to assess because the younger doctors in the survey had not yet completed all their career moves. A correct interpretation of the slight trend (more marked in the designated than the non-designated sample) towards a higher rate of settlement in home regions by younger doctors is therefore a hazardous matter, but it seems possible that they may be genuinely more likely than their older colleagues to remain within the regional vicinity of their family homes throughout their careers, even though they may change practices more often.

The capacity of medical schools and the supply of medical students

This concluding section considers the possibility that some regions may fail to produce enough students in the first place because of the lack of undergraduate places. The question of whether or not the local availability of such places stimulates the number of qualified school-leavers who choose to study medicine was considered by the Royal Commission on Medical Education (1968). The survey of medical students carried out on behalf of the Commission in 1966 showed that in 1964-5 the number of undergraduate medical students as a proportion of all full-time university undergraduates ranged from 13.6 per cent in the South-East to zero in the East Midlands, with the remaining six regions ranged between 5.0 per cent in East Anglia and 7.7 per cent in the West Midlands. On the other side of the equation, the number of entrants to medical school in that year (as a rate per 1,000 leavers with two or more 'A' levels in each region) varied from 16.2 in East Anglia to 31.1 in the West Midlands. The rank correlation on the two scores is moderately low (rho = 0.40), but it did emerge from the 1966 survey that the two regions without a clinical

school (i.e. the East Midlands and East Anglia) had a relatively poor record of supplying entrants to the medical school. After allowing for the degree of encouragement which teachers in different regions gave to school-leavers aiming at a medical career, and the social class structure of the populations, the survey authors concluded that 'East Anglia and to a lesser extent the East Midlands are contributing less to medical education than the other regions and could contribute more than they do now'. It is instructive to note that the East Midland region is thus consistently deficient on each measure: its school-leavers receive the least encouragement from teachers to study medicine, it produces fewer medical students than most other regions, it retains the lowest proportion taking up their first appointments in general practice, and it has the lowest proportion of home-produced doctors currently working in the region. When all of these facts are set against the extra one that the East Midlands had no medical school at all when these figures were compiled, then the potential significance of the location of undergraduate medical teaching centres is highlighted.

Table 9.1 Relationship between home area/current practice location and home area/medical school location

(Graduates of English Universities with family homes in England)

Relationship between home area and current practice	Relationship between home area and medical school: Same county	Different county same region	Different region	Total
DESIGNATED SAMPLE				
Same county	89(48.4)	37(36.3)	21(22.6)	147(38.8)
Different county, same region	34(18.5)	39(38.2)	9(9.7)	82(21.6)
Different region	61(33.2)	26(25.5)	63(67.8)	150(39.6)
Total	184(100)	102(100)	93(100)	379(100)
NON-DESIGNATED SAMPLE				
Same county	124(45.9)	33(20.5)	69(36.9)	226(36.6)
Different county, same region	56(20.7)	66(41.0)	20(10.7)	142(23.0)
Different region	90(33.3)	62(38.5)	98(52.4)	250(40.5)
Total	270(100)	161(100)	187(100)	618(100)

Percentages calculated down columns, and included in brackets

Table 9.2 Relationship between medical school location/current practice location and home area/medical school location

(Graduates of English universities with family homes in England)

Relationship between medical school and current practice	Relationship between home area and medical school			
	Same county	Different county same region	Different region	Total
DESIGNATED SAMPLE				
Same county	89(48.4)	15(14.7)	17(18.3)	121(31.9)
Different county, same region	34(18.5)	61(59.8)	10(10.8)	105(27.7)
Different region	61(33.2)	26(25.6)	66(71.0)	153(40.4)
Total	184(100)	102(100)	93(100)	379(100)
NON-DESIGNATED SAMPLE				
Same county	124(45.9)	20(12.4)	22(11.8)	166(26.9)
Different county, same region	56(20.7)	79(49.1)	33(17.6)	168(27.2)
Different region	90(33.3)	62(38.5)	132(70.6)	284(46.0)
Total	270(100)	161(100)	187(100)	618(100)

Percentages calculated down columns, and included in brackets

Table 9.3 Influence of birthplace, home area and medical school location on region of current practice

(Graduates of English universities, born and with family homes in England)

Events occurring in same region	Doctors currently practising in that region				Weighted total %
	Designated sample		Non-designated sample		
	no.	%	no.	%	
Birthplace only	4	9.5	4	6.5	7.6
Medical school only	20	25.6	42	27.5	26.9
Home area only	4	23.5	17	45.9	40.0
Birthplace and medical school	5	50.0	9	37.5	40.6
Birthplace and home area	25	35.2	66	47.1	43.7
Home area and medical school	19	54.3	29	59.2	57.3
Birthplace, home area and medical school	165	70.8	226	65.5	67.4

Note: Percentages are based upon the total number of doctors in each separate category. For example, the first cell indicates that 9.5 per cent of designated doctors whose birthplace was in a different region than both home area and medical school were currently practising in their birth region. The bottom cell in that column indicates that 70.8 per cent of designated doctors whose birthplace, home area and medical school were all in the same region were currently practising in that region.

Table 9.4 Relationship between home area and medical school location, first and current practice locations, by regions

Standard region of family home	Percentage of doctors attending medical school in the region	Percentage of doctors currently living in the region	Percentage of doctors taking first appointment in the region	Number of doctors (=100%)
North	63.1	56.4	65.3	123
Yorkshire/ Humberside	68.3	56.9	61.2	133
East Midlands	-	38.9	32.1	59
East Anglia	3.1	63.1	55.4	35
South-East	88.3	64.9	64.2	416
South-West	27.1	59.1	59.9	77
West Midlands	59.8	56.6	56.4	86
North-West	60.4	55.2	46.7	174
Total England	64.6	59.8	58.2	1103

Note: Percentages are based upon the weighted aggregates of the designated and non-designated samples

Table 9.5 Relationship between home area and current practice location by time of marriage, social class of family of origin, father's occupation and present age of doctors

	Relationship between home area and area of current practice						(N = 100%)	
	Same county		Different county, same region		Different region			
	D	N-D	D	N-D	D	N-D	D	N-D
Time of marriage								
Before entering practice	34.5	32.0	19.2	22.8	46.3	45.2	287	491
Before present post	41.5	35.2	26.8	21.1	31.7	43.7	41	71
After present post	55.6	53.4	23.8	20.5	20.6	26.1	63	88
Other	54.5	50.0	22.7	20.0	22.7	30.0	22	40
Social class of father								
I	45.6	41.7	17.5	21.2	36.9	37.1	160	307
II	37.4	28.6	23.5	24.9	39.1	46.5	115	185
III	35.1	35.1	25.2	18.9	39.6	45.9	111	148
IV	50.0	50.0	12.5	-	37.5	50.0	8	6
V	-	48.1	-	51.9	100.0	-	2	27
Father's occupation								
Related to medicine	48.3	55.4	17.2	14.0	34.5	30.6	116	186
Unrelated to medicine	36.3	28.4	22.6	25.2	41.1	46.4	292	496
Present age								
Less than 35	43.8	26.3	22.9	18.8	33.3	55.0	48	80
35-44	37.8	39.4	19.4	24.7	42.8	35.9	180	231
45-54	41.9	33.3	19.7	18.8	38.5	47.9	117	213
55-64	38.9	40.2	25.9	24.4	35.2	35.4	54	127
65 and above	28.6	38.5	21.4	25.6	50.0	35.9	14	39

Note: D = designated sample

ND = non-designated sample

Percentages calculated across rows, and based on number of respondents with family homes in England

CHAPTER TEN

THE DOCTOR AS A PERSON

The analysis of the survey data in the previous three chapters placed heavy emphasis on biographical and career features. We have attempted to show how the doctors in the survey had changed practices and moved from one location to another during the course of their careers, and to evaluate the significance of the historical attachments of birth, upbringing and education in the choice of practice location. The remainder of the analysis is concerned more with the present, and seeks to establish the differences, if any, between practices and practitioners in different parts of the country and in different types of practice areas. The purpose is two-fold: first to provide a descriptive outline of the state of general practice in different geographical locations, and second, to elaborate the factors which might predispose doctors to choose certain localities or types of area in which to live. This chapter is concerned with the personal attributes of age, sex, social class, marriage and family responsibilities.

Age

The age distributions of respondents in different types of practice areas were very similar (table 10.1). Those in designated areas were slightly younger than their colleagues elsewhere, but the differences were not large. The median age of doctors in designated areas was 45.7 years, compared with 47.6, 46.8 and 48.3 years respectively in open, intermediate and restricted areas. At the extremes of the age range there were slightly more younger doctors and fewer older doctors in designated than in non-designated areas, suggesting that the decline in manpower resulting from retirement during the next ten years or so may be felt most sharply in those areas which at present enjoy a relative superfluity of practitioners. Against this, if figures were available of the average age of retirement in each practice area they might show that GPs in designated areas retired younger

than those elsewhere. Such evidence would account for the slightly lower proportion of older GPs in these areas without endorsing the forecast of lower retirement rates there during the next decade. But for the time being the results cast doubt upon the evidence submitted to and accepted by the Review Body in 1970 that the chronically under-doctored areas carry the greatest risks of retirement and death resulting in a serious dislocation of services (Review Body, 1970).

The age distributions of GPs in each standard region were also similar. Indeed, less than two years separated the lowest and highest regional median ages - the East Midlands (45.6) and the South-East and South-West (47.3). Regional disparities were slightly more marked at the extremes of the age range. Only the two midland regions had more than a quarter of GPs under the age of 40 (in most regions the proportion was about a fifth), whilst East Anglia, with fewer than 10 per cent of principals over the age of 60, will probably suffer less from the future effects of retirement than most other regions. These differences, however, are largely ones of detail, and do not substantially modify the overwhelming impression that, at least in terms of their age, doctors in different practice areas and standard regions were very similar people.

Sex

About 10 per cent of all principals in England and Wales are women, a sufficiently low proportion to make them a seemingly insignificant factor in the problem of manpower distribution, but one which, nevertheless, represents quite a large absolute number of practitioners (2,158 unrestricted principals in 1970). Since the number of women doctors in full-time work (though not necessarily in general practice) amounts to no more than half of all those qualified, the question arises of whether a low rate of employment among women GPs is at least a contributory factor in the overall

shortage of medical personnel in certain areas. The evidence from previous surveys suggests a negative answer, for the proportion of medically qualified women in full-time work is generally higher in large urban areas where opportunities are relatively plentiful than in more sparsely populated rural stretches (Newhouse, 1966; Lawrie, et al, 1966).

The present survey can show neither the total number of qualified women resident in each area nor the proportion employed in general practice, but it can show the proportion of women among the respondents from each area. Failure to make the fullest possible use of women doctors might be suspected as a factor in the shortage of GPs in designated areas if they were shown to constitute a lower proportion there than in non-designated areas. This is in fact the case, for whereas women doctors constituted one in ten of all the non-designated sample, they accounted for only 5 per cent of the designated sample (table 10.2). The difference, however, is insufficiently large to be considered a realistic factor in the shortage of doctors. Variations between the regions were much greater. The proportion of women respondents was considerably lower in the South-East and South-West than in the rest of the country, and was high in East Anglia, the North-West and, to a lesser degree, in the two midland regions. There is no clear relationship between the proportion of women doctors in a region and the regional average list size, but if it is assumed that the proportion of qualified women at risk of being recruited into general practice is approximately the same in each region, then it follows that some regions may not have fully exploited this additional resource. It is extremely unlikely that the designated areas could be entirely eliminated in this way, even if all non-employed women doctors were recruited immediately to general practice, but this extra source of 'manpower' could probably make a significant improvement in many local areas.

Social class and educational background

The classification of doctors in each area by the social class of their family of origin reveals a number of interesting points (table 10.3). Most striking is the very large proportion of respondents in each area from social class I (i.e. professional) backgrounds. In total, 32 per cent of the designated sample and 40 per cent of the non-designated sample had fathers in professional occupations, and this grossly exceeds the figure for the general adult population (Glass and Hall, 1966). Conversely, a very low proportion of respondents had fathers in semiskilled or unskilled manual occupations (3 per cent and 1 per cent respectively). Other studies of the medical profession confirm this finding, both in the United States and Britain. In America, more than half the medical students graduating in 1960 had fathers who were professionals, proprietors or managers (Schumacher, 1961), although there is some evidence of an increasing 'democratization of recruitment' to the profession throughout the first half of the century (Adams, 1953). In Britain, Brown and Walker (1973) found that 43 per cent of their sample of GPs in East Yorkshire, Hampshire and Glamorgan had fathers in class I occupations, and, as the Royal Commission (1968) pointed out, the proportion of doctors drawn from the higher social classes is increasing. The 1966 survey of medical students carried out for the Commission showed that 34 per cent of all final-year students in 1961 and 1966 came from social class I homes, and among first-year students in 1966 the proportion was 40 per cent. Comparison with the general student population is difficult, but the report of the Committee on Higher Education (1963) showed that 59 per cent of a sample of undergraduates in 1961 came from class I and II backgrounds, compared with the figure of 73 per cent among medical students in the ASME survey in the same year.

The chances of becoming a doctor are therefore many times greater for a child from a professional than from a working-class background, and this is wholly consistent with the large volume of evidence that children from

middle-class homes are much more likely to achieve educational success than those from poorer backgrounds, even when intellectual ability is taken into account. In the case of doctors, however, there is the added factor of 'self-recruitment' - that is, of children following in their fathers' occupational footsteps (Rogoff, 1953). Almost a quarter (23 per cent) of the GPs in our survey were themselves the children of doctors, an identical to that found by Brown and Walker (1973) and a similar one to that among final-year medical students in 1966 (21 per cent). Self-recruitment is generally higher in medicine than in other professions (Butler, 1968). The tendency for the children of doctors to choose a medical career themselves is due in part to the natural processes of anticipatory socialistion within the medical family (Musgrave, 1967). Medically qualified parents possess the means and the motives for generating and nurturing medical ambitions in their children; as Hall (1948) puts it, 'only the members of a profession can translate the public protestations of the profession into the vernacular of useful advice'. But this type of explanation, applicable to any profession, would not explain the exceptionally high degree of self-recruitment in medicine. The rest of the explanation may lie in the greater visibility of medical work (especially general practice) to the children of doctors, and also in the selection procedures adopted by the medical schools which may be weighted in favour of applicants from medical families.

Although the doctors in the survey were, as a whole, drawn from high-class backgrounds, there were nevertheless some consistent differences between those in each type of practice area. Just under a third of respondents in designated areas had fathers in class I jobs, with the percentage rising through the open and intermediate areas to a peak of 47 per cent among those in restricted areas. Against this, the other non-manual classes (II and III non-manual) were slightly over-represented in the designated sample, though not sufficiently to counter-balance the

trend in class I. Thus on a simple manual/non-manual dichotomy there were slightly fewer doctors from non-manual backgrounds in designated areas (81 per cent) than elsewhere, with those in restricted areas having the highest proportion (87 per cent). The relatively low proportion of designated doctors with fathers in social class I occupations is partly (though not entirely) explained by the fact that, compared with the others, fewer were themselves the children of doctors. Exactly a fifth of the designated doctors came from medical backgrounds, with the proportions rising to 30 per cent and 27 per cent respectively among those in intermediate and restricted areas.

Paralleling these social differences are variations in educational background. More doctors in the designated than in the non-designated sample had attended a grammar school (50 per cent against 40 per cent) and correspondingly fewer had been to a public school (39 per cent against 48 per cent). But even among doctors from class I backgrounds the designated sample contained fewer former public school pupils (59 per cent) than the non-designated sample (65 per cent). These differences accord very closely with the results of the 1966 ASME survey (Royal Commission, 1968), and they are consistent with the earlier finding of the differential class structures of the two samples. It is, however, less significant and less surprising that the relationship between paternal social class and educational background holds good <u>within</u> each sample than that these considerable social differences should exist at all <u>between</u> doctors in different practice areas. Can they be explained in geographical terms; that is, do they disappear when geographical location is controlled? The answer is negative, at least at the regional level, for even <u>within</u> every region proportionately fewer designated than non-designated doctors had fathers in professional or managerial jobs, and more came from working-class homes. In some regions the differences were quite small, but their consistency sustains the conclusion that real differences in social class background

existed between GPs in different types of practice areas which cannot be explained by regional factors.

Having made that point, however, some regional variations were nevertheless apparent in the class backgrounds of the respondents, for in both samples the three regions to the south of a line from the Wash to the Severn contained more doctors from middle-class origins than the midland and northern regions. These results can perhaps be explained by certain generalised features of family development. If it is assumed that higher-status people usually live in 'nicer' areas (which might crudely be equated with the non-designated areas), and that a substantial number of doctors return to their home areas to practise, this would account for the higher proportion of doctors from class I backgrounds in restricted than in designated areas. The relatively high preponderance of medically qualified parents among the former group would further accentuate the tendency. By contrast, doctors from poorer backgrounds, also tending to return to their home areas as qualified practitioners, would be rather more likely to finish up in a designated area, even though many of them will doubtless reside in a 'better' locality than their parents.

Marriage

Career decisions, particularly those involving movement from one place to another, may be influenced heavily by the obligations and restraints resulting from family responsibilities at different stages of the family cycle. It has already been seen how far these responsibilities and commitments may curtail the mobility potential of young doctors in general practice, for the timing of a doctor's marriage and the ages of his children appear to affect his chances of moving (chapter 7). In the light of these findings it seems reasonable to ask whether such considerations might also affect decisions about where to live. For example, the lack of adequate

educational facilities is part of the folklore of the designated areas and it might therefore be expected that doctors working in such places would be less likely than the rest to have been faced with imminent problems of education at the time they accepted their current appointments. It is possible that fewer were married at the time or fewer had children. Spouses, too, are likely to have had an important influence on the decision. (Although the word 'spouse' is used for reasons of accuracy, most of them were in fact the wives of male doctors. About 8 per cent of the spouses were the husbands of female respondents.) The finding in the previous chapter that doctors who had married before entering general practice or before taking up their current appointments were more likely than the rest to be working away from their home regions and counties suggests that a spouse's preferences may modify or even compete with those of the doctor.

More than nine out of every ten doctors in each type of practice area and each standard region were married, approximately 4 per cent were single, 2 per cent widowed, and 1 per cent divorced or separated. The regional and area differences were not significant, nor were there any substantial variations in the time at which respondents had married relative to their entry into general practice. In each type of practice area about two-thirds had married before starting their careers in general practice and about a further 12 per cent had married after becoming GPs but before moving to their current appointments (table 10.4). The remaining doctors had thus married after starting their present jobs, and this proportion is identical in both the designated and the non-designated samples (15 per cent). There is no

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* Areas which were designated at the time of the survey may not have been designated when the doctors originally went to them; but it is probable that the character of most areas, which may be more important than the administrative label, has not changed substantially over the period in question.

support in these figures for the hypothesis that either the fact of being married or the timing of the marriage distinguishes doctors in the different types of practice areas.

The regional distribution of the spouses' home areas was very similar to that of the doctors themselves. (Spouse's home area is defined by the question: 'Where was your wife's (husband's) home for most of the time before her (his) marriage?') About a third of the spouses whose family homes had been in England were, at the time of the survey, living in the same county as their home, and a further fifth were living in a different county of the same region. Put another way, just over half of all the doctors whose spouses had family homes in England were practising in the same standard region as their spouses' homes - slightly fewer than were working in the same region as their own family homes. There were no significant differences between the designated and non-designated samples in this respect. The conclusion from this finding, that the influence of the spouse's home area is closely tied up with that of the doctor's own home territory, is confirmed by the fact that 46 per cent of the designated sample and 43 per cent of the non-designated sample had married someone from their own home regions. The interesting question is whether the two influences operate independently. Are doctors more likely to be practising in their home regions if these are also the places of their spouses' family home? The answer is in the affirmative (table 10.5). Whereas 60 per cent of the designated doctors were living in the same standard region as their own family home the proportion increased to 75 per cent among those whose spouses also came from the region, and fell to 42 per cent for those who had married partners from a different region. Similarly, whereas 60 per cent of respondents in the non-designated sample were practising in their home region, the proportions were 72 per cent and 42 per cent respectively for those whose spouses did and did not have their family homes in the same regions. The differences also held good at the county level. (For reasons discussed in the previous chapter these figures

are limited to respondents whose own and spouses' family homes had been in England.)

The independent influence of the spouse's home area (that is, when it is unrelated to the doctor's birthplace, own home area or medical school) seems to rank on a par with the medical school: more significant than a doctor's birthplace but less so than his own home area. Thus 26 per cent of respondents for whom all the relevant geographical points were in England were currently practising in the same standard region as their spouses' homes when they had none of the other recorded links with it, and there were no differences in this respect between the two samples. Where the spouse's home added an extra link to the chain of association which a doctor had with a region, then the chances of his living there increased still further. Whereas some two-thirds of the doctors who were born, brought up and medically educated in the same region of England were also practising in that region, the figure rose to 76 per cent among those who had also married someone from the region (see diagram, page 234).

Family responsibilities

The evidence from the survey about the relationship between family responsibilities, mobility, and choice of practice area shows an interesting divergence. On the one hand it is clear that in several ways the respondents' family commitments had limited the amount of movement which they made. The earlier they had married the less likely they were to have moved at all, and almost all had settled by the time their children reached secondary school age. On the other hand there is very little evidence that these factors had also affected decisions of where to practise, whether this is defined in the broad sense of the type of practice area, or in the more limited sense of the region of the country. One might expect the obvious and justified concern which doctors have about the

education of their children to be reflected in their choice of a place to work, but this does not appear to be the case, at least in terms of the choice between a designated and a non-designated area (table 10.6). Respondents in designated areas were no more likely than the rest to have started their current positions before having any children, and they were just as likely to have started by the time their eldest child had reached secondary school age. Part of the explanation may lie in the use made of boarding schools, about which we have no information. It may also mean that the perceived educational facilities of the area were unimportant to most respondents in accepting their current positions, although again we cannot be sure. But certainly for many doctors the problems of secondary education were fairly distant at the time they settled down, and they were as distant for those moving into what are now the non-designated areas as for the rest.

Table 10.1 Present age of doctors and type of practice area

Present age	Type of practice area			
	Designated	Open	Intermediate	Restricted
Under 30	7(1.0)	7(1.1)	3(1.2)	1(0.6)
30 - 34	53(7.7)	46(7.4)	24(9.3)	9(5.7)
35 - 39	115(16.7)	67(10.8)	31(12.1)	14(8.9)
40 - 44	141(20.5)	121(19.5)	53(20.6)	28(17.8)
45 - 49	115(16.7)	111(17.9)	37(14.4)	36(22.9)
50 - 54	107(15.6)	84(13.5)	39(15.2)	25(15.9)
55 - 59	68(9.9)	91(14.7)	33(12.8)	21(13.4)
60 - 64	47(6.8)	52(8.4)	15(5.8)	13(8.3)
65 & over	34(4.9)	41(6.6)	22(8.6)	10(6.4)
Total	687(100)	620(100)	257(100)	157(100)
Median age	45.7	47.6	46.8	48.3

Percentages calculated down columns, and included in brackets

Table 10.2 Sex of doctors and type of practice area

Sex	Type of practice area			
	Designated	Open	Intermediate	Restricted
Male	651(94.8)	560(90.3)	237(92.2)	140(89.2)
Female	36(5.2)	60(9.7)	20(7.8)	17(10.8)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 10.3 Social class of family of origin and type of practice area

Social class of family of origin	Type of practice area			
	Designated	Open	Intermediate	Restricted
I	221(32.2)	230(37.1)	114(44.4)	73(46.5)
II	235(34.2)	203(32.7)	70(27.2)	43(27.4)
III non-manual	105(15.3)	90(14.5)	31(12.1)	21(13.4)
III manual	72(10.5)	57(9.2)	20(7.8)	6(3.8)
IV	16(2.3)	6(1.0)	3(1.2)	5(3.2)
V	2(0.3)	-	-	-
not known	36(5.2)	34(5.5)	19(7.4)	9(5.7)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 10.4 Time of marriage and type of practice area

Time of marriage	Type of practice area			
	Designated	Open	Intermediate	Restricted
Before starting general practice	450(65.5)	388(62.6)	173(67.3)	115(73.2)
After starting general practice but before present position	97(14.1)	86(13.9)	28(10.9)	18(11.5)
After starting present position	102(14.8)	100(16.1)	34(13.2)	17(10.8)
Not known	12(1.7)	16(2.6)	9(3.5)	1(0.6)
Never married	26(3.8)	30(4.8)	13(5.1)	6(3.8)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 10.5 Relationship between home area/current practice location and home area/spouse's home area

(Married doctors whose own and whose spouses' home areas were in England)

Relationship between own home area and current practice	Relationship between spouse's home area and own home area			Total
	Same county	Different county	Different region	
DESIGNATED SAMPLE				
Same county	86(57.3)	22(34.4)	32(26.9)	140(42.0)
Different county	25(16.7)	27(42.2)	18(15.1)	70(21.0)
Different region	39(26.0)	15(23.4)	69(58.0)	123(36.9)
Total	150(100)	64(100)	119(100)	333(100)
NON-DESIGNATED SAMPLE				
Same county	111(56.9)	26(22.4)	58(24.6)	195(35.6)
Different county	30(15.4)	58(50.0)	40(16.9)	128(23.4)
Different region	54(27.7)	32(27.6)	138(58.5)	224(41.0)
Total	195(100)	116(100)	236(100)	547(100)

Percentages calculated down columns, and included in brackets

Table 10.6 Age of children at time of starting current position and type of practice area

(Married doctors only)

Ages of children at starting current position	Type of practice area			
	Designated	Open	Intermediate	Restricted
No children	292(45.0)	251(43.7)	98(41.7)	63(42.0)
Eldest child under 11	319(49.2)	289(50.3)	122(51.9)	73(48.7)
Eldest child over 11	38(5.8)	34(6.0)	15(6.4)	14(9.3)
Total	649(100)	574(100)	235(100)	150(100)

Percentages calculated down columns, and included in brackets

CHAPTER ELEVEN

THE DOCTOR AS A PROFESSIONAL

Qualifications and medical school

The respondents in the survey held similar primary and secondary qualifications, whichever region or whatever type of practice area they were in. The proportion of doctors holding only an M.B., Ch.B. (or equivalent) fell consistently from 66 per cent of doctors in designated areas to 56 per cent of those in restricted areas, but this was offset by a compensating increase in the proportion of those holding an M.B., Ch.B. and conjoint (table 11.1). Most of the medical schools from which these primary qualifications had been obtained were equally represented among doctors in each sample, with the exception of London University, which supplied 43 per cent of the doctors in the non-designated areas but only 28 per cent of those in designated areas. These figures probably reflect the position of London in relation to the geographical dispersion of designated areas rather than a deliberate bias against such areas on the part of London graduates. Graduates from medical schools outside England, and from the Royal Colleges, were fairly equally represented in each sample, and there is no consistent evidence that these doctors had been particularly biased towards or against certain types of practice areas. Doctors from Indian and Pakistani medical schools made up no more than 1.5 per cent of the total number of GPs in the survey, and, given the small numbers involved, were equally represented in the designated and non-designated samples.

This latter figure is instructive for the light it casts on the emotive question of foreign-born doctors in the National Health Service. The 1968 Annual Report of the Department of Health and Social Security showed that 13 per cent of all the unrestricted principals in England that year were born outside the British Isles, and the present survey for the same year yielded proportions of 11 per cent and 12 per cent respectively in the

designated and non-designated samples. But the data also showed that the majority of these doctors had been born in non-Commonwealth countries; indeed, fewer than 5 per cent of all respondents had been born in Commonwealth countries, and even this figure over-estimates the proportion of Commonwealth citizens because birthplace does not necessarily define nationality. Many doctors who had been born in India, for example, were the sons of English parents on colonial service. A better estimate of the proportion of Asian doctors in general practice might be made on the basis of medical school attendance, and on this indicator the maximum proportion would be set at about 2-3 per cent. At the same time, however, the proportion of Asian GPs may well be increasing. Cargill's (1969) analysis of a 10 per cent sample of all practitioners in England and Wales showed that the proportion of graduates fromAsian medical schools entering general practice increased from 4 per cent in 1961-2 to 18 per cent in 1969. These figures are consistent with the conclusion that about 2-3 per cent of all principals currently in practice are of asian origin, but it seems likely that this proportion is now rising (DHSS, 1972d).

Age at starting current position

Although respondents in different practice areas and regions of the country had spent similar lengths of time in general practice and in their current positions, those in the designated sample had started their present positions at a slightly younger age than their colleagues elsewhere (table 11.2). Whereas, for example, 42 per cent of all GPs in the designated sample had started in their current positions by the age of 30, only 37 per cent of the others had done so. The overall difference is admittedly small, but because it holds good in every age group between 34 and 55 it is probably a genuine difference rather than a mere quirk of the data. Moreover, the proportion of doctors in the 50-54 age group starting their present positions by the age of 30 was artificially low in both samples as a result of the

disruptive effects of the war. It seems, therefore, that in areas which were designated at the time of the survey, it has usually been possible to become a principal at a slightly younger age than in the other areas, and this is as true for those who had made several moves as for those who had made none. Naturally the more moves a doctor had made the older he was, on average, when he started his current position, but even among those who had been in more than one practice there remained a higher proportion of designated than non-designated doctors starting in their present positions by the age of 30.

Other current appointments

The doctors in the survey were asked whether, in addition to their responsibilities in general practice, they held any other medical appointments. The proportion responding positively ranged from 56 per cent in designated areas to 66 per cent in restricted areas (table 11.3). There were also some regional differences (table 11.4). A comparatively high proportion of doctors in the Northern region reported at least one other appointment, and the proportions were also quite high in the West Midlands, the South-East and South-West, and the Yorkshire/Humberside region. Conversely, GPs in the North-West and the East Midlands were less likely to be holding such outside appointments. But even within every region except the South-East a higher percentage of doctors in non-designated than in designated areas were engaged in some kind of medical work in addition to general practice. It seems, therefore, not only that such outside appointments were more popular (or more easily obtained) in some parts of the country than in others, but also that doctors in designated areas were in some way precluded or discouraged from accepting them. The explanation does not appear to lie in the fact that the pressures of work resulting from large lists were sufficiently great to deny respondents in the designated areas any spare time to engage in other professional activities, for the differences between areas remained even with list size held constant.

A minority of these outside appointments involved hospital posts, but the proportion of respondents holding hospital appointments of one kind or another rose from 37 per cent in the designated areas to 50 per cent among doctors in restricted areas. Not only were outside appointments apparently more easy to come by in the restricted areas (and in non-designated areas as a whole), but a higher proportion of them were likely to involve hospital work.

Direct access to hospital beds

Respondents were asked whether they had direct access to any NHS beds where they retained full responsibility for the treatment of their patients. The form of the question was identical to that used by Cartwright (1967) in her national sample survey of GPs. Cartwright found that 61 per cent of her sample of 415 doctors had access to no hospital beds at all; 27 per cent had access to obstetric beds only; and the remaining 12 per cent were able to care for their patients in other types of beds. The results from the present survey, set out in table 11.5, differ somewhat from Cartwright's. The proportion of doctors reporting no access at all to hospital beds was lower, ranging from 51 per cent in the designated areas to only 38 per cent in restricted areas. Moreover, the type of bed available also differed somewhat between practice areas. For the doctor working in a designated area the most common form of care which he was able to provide in hospital was obstetric: more than three-quarters of the designated doctors who reported that they had direct access to hospital beds were limited to obstetric beds only. By contrast, only a little over a third of doctors in restricted areas were confined in their hospital work solely to obstetric cases, the remainder having access, in varying degrees, to surgical, medical and geriatric beds. Conversely, whereas only 10 per cent of all designated doctors had any access to beds other than obstetric, the proportion rose to 39 per cent among the restricted doctors.

These findings are consistent with the earlier conclusion that, even allowing for geographical location and list size, the designated areas appeared to offer fewer opportunities for any kind of medical work outside general practice. Can they be explained by regional factors? Some regions of the country certainly had much better access facilities than others (table 11.6). In the South-West, for example, about 70 per cent of all GPs had some form of hospital responsibility, even if only for the obstetric care of their patients, and at least half of all the doctors in the East and West Midland and the North-West also reported the opportunity to care for some of their patients whilst in hospital. In Yorkshire/Humberside and the South-East, by contrast, fewer than half the doctors had these facilities open to them, whilst in East Anglia the proportion was as low as 40 per cent (although numbers in this region are small). Such regional variations, however, do not adequately explain the observed differences between the practice areas, for even within each region except the North-West and Yorkshire/Humberside the percentage of doctors reporting direct access to hospital beds was higher in the non-designated than in the designated sample.

To complement the factual information about the degree of access to hospital care which the doctors actually enjoyed, they were further asked whether they considered this access to be adequate. Responses were recorded on a four-point scale ranging from 'most adequate' to 'most inadequate', and mean scale scored were calculated by the simple technique of assigning a value of 4 to a 'most adequate' response, 3 to an 'adequate' response, and so on (table 11.7). Two aspects of this analysis merit comment. First, the more access doctors had to hospital beds, the greater was their expressed satisfaction. In the designated sample, for instance, the mean score among doctors who had clinical responsibility for obstetric and other beds was 2.8, compared with 2.2 among those with obstetric beds only, and 1.8 among GPs with no beds at all. In the

non-designated sample the respective scores were 2.8, 2.4 and 1.8. Second, the designated doctors as a whole were less satisfied with their access to NHS hospital beds than the others. The mean scale score for all designated doctors was 2.1 compared with a mean score of 2.4 among those in the non-designated sample. This difference follows logically from the variation between the two samples in the reported degree of actual access.

Direct access to diagnostic facilities

The tendency for doctors in the designated areas to have had rather fewer opportunities than their colleagues elsewhere for working beyond the immediate confines of their practices is further reflected in the greater difficulties which they apparently had in obtaining access to various diagnostic facilities. Respondents were asked whether they had direct access (that is, other than through a consultant or casualty) to each of four diagnostic facilities - full-sized chest X-rays, bone and joint X-rays, bacteriological examination of urine and glucose tolerance tests. This question was also used by Cartwright (1967) who found that 54 per cent of all the GPs in her sample had direct access to all four services. In the present survey the proportions were somewhat higher, ranging from 65 per cent among respondents in designated areas to 76 per cent of those in restricted areas (table 11.8). The mean numbers of services to which doctors reported direct access were 3.3, 3.4, 3.5 and 3.6 respectively in designated, open, intermediate and restricted areas.

Inter-regional variations were much larger (table 11.9). Doctors in the Northern, South-Eastern, South-Western and North-Western regions generally reported a fairly high degree of access to the four listed diagnostic services, whereas those in Yorkshire/Humberside and the West Midlands were less favourably placed. But a comparison between the

designated and non-designated samples within each region shows, somewhat surprisingly, not only that the slight advantage of the non-designated doctors in this respect had disappeared, but that in most cases it had actually become a disadvantage. For whereas the non-designated doctors were rather better off than the others when the whole country is taken as one unit, they were somewhat worse off within each region except the North and the East and West Midlands, and in some cases appreciably so.

As with the question about access to hospital beds, respondent were then asked to assess the adequacy of their local arrangements with respect to the use of diagnostic facilities on a four-point scale,and, also following the pattern set by the earlier question, there was a clear association between the actual situation in each sample and the doctors' assessments of it (table 11.10). The proportion of doctors rating their degree of access to diagnostic services as 'most adequate' ranged from 39 per cent in designated areas to 52 per cent in restricted areas, and also increased as the number of accessible services accumulated. In the designated sample, for instance, the mean score increased from 2.0 among those who had access to none of the four services to 3.4 among those with access to all four services. In the non-designated sample the corresponding range was from 2.0 to 3.5. Regional variations in the degree of satisfaction were of some significance. Fewer than a third of all the doctors in Yorkshire/ Humberside and the West Midlands rated their local arrangements as being 'most adequate' (these also being the two regions in which fewest doctors had direct access to all four services), whilst almost half of those in the Northern, South-Eastern and South-Western regions chose this particular rating (reflecting the fact that these three regions had the highest proportions of doctors with full access).

Communications between hospitals and GPs

With respect to the communication of information from the hospital

to the GP when patients are discharged, doctors in the designated areas did not fare any worse than their colleagues in other places. Table 11.11 is conspicuous for its lack of any overall differences between the practice areas in the respondents' assessments of their local communication systems, although in this case the inter-regional contrasts were greater. The Northern region and East Anglia had high overall scores in both samples (about three-quarters of the doctors in both regions rated their local communication systems as 'very good' or 'good'), whilst scores in the East and West Midlands and the South-West were low. The variations between the two samples within each region were generally small, except in the South-West, where the mean score was considerably higher for the non-designated than the designated doctors (2.6 against 2.1).

Post-graduate and in-service training

A traditional criticism of British medical education is that many students, having been trained to a very high degree of clinical competence within the intensive and rarified atmosphere of the teaching hospital, are thrust out into the community when qualified, and more or less isolated from the centres of teaching and research from which they could and should draw continuing support in the form of post-graduate training, refresher courses and regular supply of information about new advances in medical science. Several attempts have recently been made to overcome this sense of professional isolation which many family doctors undoubtedly feel, and the growth of post-graduate medical centres throughout the country is perhaps the bravest and most successful innovation of all. But little is known of the doctor's own reactions to these developments, or whether their apparent effectiveness has been evenly felt throughout the different regions and practice areas of the country. Three questions were included in the survey about the opportunities which respondents felt they had for this kind of professional interaction; the results point to the general

conclusion that, although the inter-area contrasts were quite slight, the restricted areas were generally felt to have the worst opportunities.

First, respondents were asked to rate their opportunities for taking post-graduate or refresher courses on a four-point scale (table 11.12). Proportionately more doctors in the designated and open areas rated their access to post-graduate and refresher courses as 'very good' than did those in the intermediate and restricted areas, and the mean scores show a slight but regular decline moving from the designated and open areas through to the restricted areas. There were no differences within the two samples between doctors of different ages in the way they rated their opportunities for further education, and the mean scale scores were virtually identical for doctors with and without higher qualifications, and for those with list sizes above and below 2,600. The inter-regional variations were also small: GPs in the East Midlands, East Anglia and the North-West generally recorded lower mean scores than those in other regions (and they were also less likely to rate their opportunities as 'very good'), but the differences were quite slight.

The second question in this section asked the respondents to rate their contacts with teaching hospitals as 'frequent', 'occasional', 'rare', or 'non-existent'. Table 11.13 shows the distribution of responses between the types of practice areas, and, as with the previous question, confirms that although the inter-area differences were quite small, doctors in the restricted areas had the least amount of contact with a teaching hospital. Fewer of these doctors reported their contacts as 'frequent' or 'occasional', and correspondingly more rated them as 'rare' or 'non-existent'. The designated areas fell about midway in the range: the responses were more favourable than in the restricted areas, but somewhat less so than in the open or intermediate areas. The same pattern

is seen in the mean scale scores for each practice area. The greatest differences in frequency of contact with a teaching hospital were seen between doctors who were and were not practising in the same regions as their own medical schools. In both samples the mean scores for doctors working in the regional vicinity of their medical schools were significantly higher than among those who had left their school regions. A sizeable proportion of the contacts which the respondents mentioned were probably with their own universities, and it is understandable that those remaining near to them should maintain their links more easily than those moving farther afield.

The last question about post-graduate training requested the respondents to rate their contacts with post-graduate medical centres on the same four-point scale. Although for most doctors a contact with a teaching hospital was something additional to that with a medical centre, the reverse was not the case. Thus, whereas most doctors who reported their contacts with teaching hospitals as being 'frequent' or 'occasional' were also in regular touch with a post-graduate medical centre, the majority of those who were in regular association with a centre did not report any systematic contact with a teaching hospital. This confirms that the post-graduate centres are in fact largely fulfilling one of their intended functions of providing a centre of medical education for GPs who are geographically isolated from a larger medical teaching centre, and, consequently, a far higher proportion of respondents were in regular touch with one of these centres than with a teaching hospital (table 11.14). Some two-fifths of all respondents reported 'frequent' contacts with a centre, and for a further third the contacts were 'occasional'. But, as in the previous question, doctors in the restricted areas were rather worse off than those in other areas: only 38 per cent of them reported their contacts with a post-graduate centre as being 'frequent' compared with, for example, 49 per cent of doctors in designated areas. The distribution of mean scale scores

further illustrates the relatively favourable responses of doctors in designated areas. The mean score for these respondents was 3.3, compared with 3.2 among doctors in open areas and 3.1 for those in intermediate and restricted areas.

Comment

In view of the primary aims of the survey to investigate mobility and settlement patterns among GPs, it was impossible to include a full set of questions about contemporary conditions in general practice. The intention has been to collect limited data to use as general indicator of the various circumstances of GPs in different practice areas. The results discussed in this chapter show that in some respects the doctors in the designated sample were more favourable endowed professionally than those in other areas, in some respects they were worse off, and in yet others they were equally placed. The differences, where they existed, were seldom very large between the different practice areas, and they do not support the assumption that conditions of practice in designated areas are consistently worse than elsewhere.

It seems that although doctors in areas with lower doctor-patient ratios were more closely integrated into the surrounding local medical care systems (especially the hospitals), those in the designated areas were more likely to have professional links with the centres of teaching, research and administration. This may result in part from the greater concentration of designated areas around the large urban areas and conurbations where the teaching hospitals are located, But the acceptance of change and innovation may also be swifter in these places than in the more remote and conservative areas away from the hub of the city. The evidence of such a cultural lag is reviewed in the next chapter, which deals with certain practice characteristics.

Table 11.1 Primary qualifications and type of practice area

Primary qualifications	Type of practice area			
	Designated	Open	Intermediate	Restricted
M.B., Ch.B. or equivalent only	452(65.8)	381(61.5)	149(58.0)	86(56.1)
Conjoint or equivalent only	126(18.3)	119(19.2)	46(17.9)	30(19.1)
M.B.,Ch.B. and conjoint or equivalents	88(12.8)	113(18.2)	57(22.2)	36(22.9)
Others	21(3.1)	7(1.1)	5(1.9)	3(1.9)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 11.2 Present age of doctors and age at starting current position

Present age	Age at starting current position						
	Less than 30	30-34	35-39	40-44	45 or older	Not known	Total
DESIGNATED SAMPLE							
Less than 30	7(100.0)	-	-	-	-	-	7(100)
30-34	41(77.4)	12(22.6)	-	-	-	-	53(100)
35-39	54(47.0)	53(46.1)	8(7.0)	-	-	-	115(100)
40-44	61(43.3)	47(33.3)	29(20.6)	4(2.8)	-	-	141(100)
45-49	49(42.6)	38(33.0)	13(11.3)	13(11.3)	2(1.7)	-	115(100)
50-54	29(27.1)	52(48.6)	15(14.0)	4(3.7)	7(6.5)	-	107(100)
55 or older	49(32.9)	40(26.8)	27(18.1)	10(6.7)	22(14.8)	1(0.7)	149(100
Total	290(42.2)	242(35.2)	92(13.4)	31(4.5)	31(4.5)	1(0.1)	187(100)
NON-DESIGNATED SAMPLE							
Less than 30	11(100)	-	-	-	-	-	11(100)
30-34	64(81.0)	15(19.0)	-	-	-	-	79(100)
35-39	43(38.4)	58(51.8)	11(9.8)	-	-	-	112(100)
40-44	73(36.1)	77(38.1)	38(18.8)	14(6.9)	-	-	202(100)
45-49	65(35.3)	69(37.5)	29(15.8)	16(8.7)	5(2.7)	-	184(100)
50-54	30(20.3)	73(49.3)	21(14.2)	6(4.1)	16(10.8)	2(1.4)	148(100)
55 or older	97(32.6)	76(25.5)	62(20.8)	17(5.7)	39(13.1)	7(2.3)	198(100)
Total	383(37.0)	368(35.6)	161(16.6)	53(5.1)	60(5.8)	9(0.9)	1034(100)

Percentages calculated across rows, and included in brackets

Table 11.3 Appointments currently held outside general practice and type of practice

Appointments currently held	Type of practice area			
	Designated	Open	Intermediate	Restricted
Hospital only	81(11.8)	82(13.2)	34(13.2)	30(19.1)
Non-hospital only	242(35.2)	227(36.6)	86(33.5)	51(32.5)
Hospital and non-hospital	63(9.2)	83(13.4)	39(15.2)	22(14.0)
None	300(43.7)	225(36.3)	97(37.7)	54(34.4)
Not known	1	3(0.5)	1(0.4)	-
Total	687(100)	620(100)	257(100)	157(100)

Table 11.4 Doctors with at least one current appointment outside general practice, and standard region of current practice location

Standard region of current practice	Doctors currently holding other appointments			
	DESIGNATED SAMPLE		NON-DESIGNATED SAMPLE	
	no.	% of total	no.	% of total
North	49	59.0	55	78.6
Yorkshire/Humber	57	61.3	58	61.7
East Midlands	42	50.6	38	59.4
East Anglia	17	53.1	46	63.0
South-East	103	62.4	240	61.2
South-West	5	41.7	101	63.5
West Midlands	74	60.2	48	68.6
North-West	39	40.6	68	60.7
Total	386	56.2	654	63.2

Table 11.5 Direct access to hospital beds and type of practice area

Direct access available to:	Type of practice area			
	Designated	Open	Intermediate	Restricted
Obstetric beds only	253(36.8)	175(28.2)	61(23.7)	35(22.3)
Other beds only	29(4.2)	58(9.4)	27(10.5)	27(17.2)
Obstetric and other beds	40(5.8)	82(13.2)	57(22.2)	34(21.7)
No beds at all	351(51.1)	294(47.4)	108(42.0)	59(37.6)
Not known	14(2.0)	11(1.8)	4(1.6)	2(1.3)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 11.6 Doctors with direct access to any hospital beds, and standard region of current practice location

Standard region of current practice	Doctors with direct access to any hospital beds			
	DESIGNATED SAMPLE		NON-DESIGNATED SAMPLE	
	no.	% of total	no.	% of total
North	31	37.3	45	64.3
Yorkshire/Humber	47	50.5	42	44.7
East Midlands	44	53.0	37	57.8
East Anglia	7	21.9	34	46.6
South-East	64	38.8	181	46.2
South-West	8	66.7	113	71.1
West Midland	70	56.9	47	67.1
North-West	51	53.1	57	50.9
Total	322	46.9	556	53.8

Table 11.7 Doctors with direct access to hospital beds and the perceived adequacy of access

Perceived adequacy of access	Direct access available to: Obstetric beds only	Obstetric/ other beds or other only	No beds	Not known	Total
DESIGNATED SAMPLE					
Most adequate	17(6.9)	10(14.5)	24(10.3)	-	51(9.2)
Adequate	84(34.1)	38(55.1)	29(12.4)	2(50.0)	153(27.7)
Inadequate	99(40.2)	17(24.6)	50(21.5)	-	166(30.1)
Most inadequate	46(18.7)	4(5.8)	130(55.8)	2(50.0)	182(33.0)
Not known	7	-	118	10	135
Total	253(100)	69(100)	351(100)	14(100)	687(100)
Mean score	2.2	2.8	1.8	-	2.1
NON-DESIGNATED SAMPLE					
Most adequate	27(10.0)	57(20.3)	28(9.2)	1(25.0)	113(13.2)
Adequate	95(35.3)	142(50.5)	48(15.7)	1(25.0)	286(33.3)
Inadequate	108(40.1)	72(25.6)	72(23.6)	1(25.0)	253(29.5)
Most inadequate	39(14.5)	10(3.5)	157(51.5)	1(25.0)	207(24.1)
Not known	2	4	156	13	175
Total	271(100)	285(100)	461(100)	17	1034(100)
Mean score	2.4	2.8	1.8	-	2.4

Note: Because of the large number of 'not known' responses, they have been omitted from the denominator in calculating the percentages and mean scores in each column. The mean scores are calculated by assigning a value of 4 to a 'most adequate' response, 3 to an 'adequate' response, 2 to an 'inadequate' response, and 1 to a 'most inadequate' response.

Percentages calculated down columns, and included in brackets.

Table 11.8 Direct access to diagnostic facilities and type of practice area

Number of listed services which are accessible	Type of practice area			
	Designated	Open	Intermediate	Restricted
None	27(4.0)	25(4.0)	8(3.1)	3(1.9)
1	41(6.0)	22(3.5)	2(0.8)	2(1.3)
2	58(8.4)	45(7.3)	19(7.4)	9(5.7)
3	107(15.6)	120(19.4)	38(14.8)	19(12.1)
4	448(65.2)	401(64.7)	183(71.2)	120(76.4)
Not known	6(0.9)	7(1.1)	7(2.7)	4(2.5)
Total	687(100)	620(100)	257(100)	157(100)
Mean no. of services	3.3	3.4	3.5	3.6

Percentages calculated down columns, and included in brackets

Table 11.9 Doctors with direct access to diagnostic facilities, and standard region of current practice location

Standard region of current practice	Mean no. of diagnostic services available	
	Designated sample	Non-designated sample
North	3.4	3.7
Yorkshire/Humberside	3.1	3.1
East Midlands	3.4	3.5
East Anglia	3.8	3.3
South-East	3.5	3.5
South-West	3.8	3.7
West Midlands	2.7	3.3
North-West	4.6	3.4
Total	3.3	3.5

Table 11.10 Doctors with direct access to diagnostic facilities and perceived adequacy of access

Perceived adequacy of access	Number of listed services which are accessible						
	0	1	2	3	4	Not known	Total
DESIGNATED SAMPLE							
Most adequate	-	2(4.9)	2(3.4)	23(21.5)	238(53.1)	-	265(38.6)
Adequate	4(14.8)	8(19.5)	18(31.0)	59(55.1)	163(36.4)	2(33.3)	254(37.0)
Inadequate	6(22.2)	22(53.7)	29(50.0)	22(20.6)	43(9.6)	-	122(17.8)
Most inadequate	8(29.6)	9(22.0)	9(15.5)	3(2.8)	2(0.4)	1(16.7)	32(4.7)
Not known	9(33.3)	-	-	-	2(0.4)	3(50.0)	14(2.0)
Total	27(100)	41(100)	58(100)	107(100)	448(100)	6(100)	687(100)
Mean score	2.0	2.1	2.2	3.0	3.4	-	3.1
NON-DESIGNATED SAMPLE							
Most adequate	4(11.1)	-	5(6.8)	28(15.8)	412(58.5)	1(5.6)	450(43.5)
Adequate	5(13.9)	7(26.9)	25(34.2)	120(67.8)	248(35.2)	-	405(39.2)
Inadequate	7(19.4)	13(50.0)	37(50.7)	27(15.3)	41(5.8)	1(5.6)	126(12.1)
Most inadequate	10(27.8)	6(23.1)	6(8.2)	1(0.6)	1(0.1)	-	24(2.3)
Not known	10(27.8)	-	-	1(0.6)	2(0.3)	16(88.9)	29(2.8)
Total	36(100)	26(100)	73(100)	177(100)	704(100)	18(100)	1034(100)
Mean score	2.1	2.0	2.4	3.0	3.5	-	3.3

Note: Mean scores are calculated as in table 11.7, and exclude 'not known' responses.
Percentages calculated down columns, and included in brackets.

Table 11.11 Doctors' ratings of communications from hospitals when patients are discharged and type of practice area

Communications from hospital	Type of practice area			
	Designated	Open	Intermediate	Restricted
Very good	68(9.9)	34(5.5)	17(6.6)	11(7.0)
Good	351(51.1)	346(55.8)	140(54.5)	83(52.9)
Poor	218(31.7)	187(30.2)	67(26.1)	47(29.9)
Very poor	26(3.8)	27(4.2)	17(6.6)	11(7.0)
Not known	24(3.5)	26(4.2)	16(6.2)	5(3.2)
Total	687(100)	620(100)	257(100)	157(100)
Mean score	2.7	2.7	2.7	2.6

Note: Mean scores are calculated as in table 11.7, and exclude 'not known' responses.

Percentages calculated down columns and included in brackets.

Table 11.12 Doctors' ratings of opportunities for post-graduate or refresher courses and type of practice area

Opportunities for courses	Type of practice areaz			
	Designated	Open	Intermediate	Restricted
Very good	218(31.7)	222(35.8)	67(26.1)	39(24.8)
Good	329(47.9)	271(43.7)	126(49.0)	69(43.9)
Poor	102(14.8)	87(14.0)	40(15.6)	31(19.7)
Very poor	24(3.5)	25(4.0)	13(5.1)	14(8.9)
Not known	14(2.0)	15(2.4)	11(4.3)	4(2.5)
Total	687(100)	620(100)	257(100)	157(100)
Mean score	3.1	3.1	3.0	2.9

Note: Mean scores are calculated as in table 11.7, and exclude 'not known' responses.

Percentages calculated down columns, and included in brackets.

Table 11.13 Doctors' ratings of contacts with teaching hospital and type of practice area

Contact with teaching hospitals	Type of practice area			
	Designated	Open	Intermediate	Restricted
Frequent	92(13.4)	96(15.5)	45(17.5)	20(12.7)
Occasional	221(32.2)	221(35.6)	87(33.9)	40(25.5)
Rare	212(30.9)	174(28.1)	77(30.0)	50(31.8)
Non-existent	153(22.3)	114(18.4)	41(16.0)	44(28.0)
Not known	9(1.3)	15(2.4)	7(2.7)	3(1.9)
Total	687(100)	620(100)	257(100)	157(100)
Mean score	2.4	2.5	2.5	2.2

Note: Mean scores are calculated as in table 11.7, and exclude 'not known' responses.

Percentages calculated down columns, and included in brackets.

Table 11.14 Doctors' ratings of contacts with post-graduate medical centres and type of practice area

Contacts with post-graduate centres	Type of practice area			
	Designated	Open	Intermediate	Restricted
Frequent	334(48.6)	272(43.9)	96(37.4)	60(38.2)
Occasional	214(31.1)	225(36.3)	106(41.2)	57(36.3)
Rare	77(11.2)	61(9.8)	33(12.8)	19(12.1)
Non-existent	45(6.6)	44(7.1)	13(5.1)	16(10.2)
Not known	17(2.5)	18(2.9)	9(3.5)	5(3.2)
Total	687(100)	620(100)	257(100)	157(100)
Mean score	3.3	3.2	3.1	3.1

Note: Mean scores are calculated as in table 11.7, and exclude 'not known' responses.

Percentages calculated down columns, and included in brackets

CHAPTER TWELVE

THE DOCTOR AND HIS PRACTICE

List size

Information was presented in chapter 4, drawn from unpublished tabulations supplied by the DHSS, of the dispersion of doctors' individual list sizes within practice areas, in 1972. The data showed a substantial minority of principals to have list sizes outside the defining range for the classification of their practice areas; in open areas, for example, almost half of the GPs had lists above 2,500, and almost one in five had lists in excess of 3,000 (table 4.7). Similar data are available for the survey doctors (table 12.1). This information was obtained from the sample print-out drawn from the Doctor Index which classifies the average list size for each practice in bands of 100 and 200. Unfortunately the interval limit in the Index does not coincide exactly with 2,500: practices of this size are contained within the band 2,400-2,599, but it was possible to estimate the proportion of doctors in practices with average lists above and below 2,500. The results show a substantial spread within each area across the range of list sizes. In the designated areas, for example, about a fifth of the doctors were estimated to be in practices with fewer than 2,500 patients per doctor. In other words, about one doctor in five in designated areas had average practice list sizes below the criterion for designation, and about one in ten was in a practice with an average list below 2,200. Even among doctors actually receiving a designated area allowance in 1968 about a fifth had average practice lists below 2,500, which means that more than £300,000 was paid out in designated area allowances in that year to some 800 doctors in practices below the designated size.

These results confirm that a considerable number of doctors are in practices with lists of a size that fall outside the defining limits of the classification of their areas. The one-fifth of designated doctors with practice lists below 2,500 came into this category, and similar

calculations can be made for the other practice areas. Thus in open areas about three-quarters of the respondents fell outside the defining range for this type of area (i.e. between 2,100 and 2,500), and the majority exceeded 2,500, yet still they were ineligible for a designated area allowance. In intermediate areas about four-fifths of the respondents had average practice lists either below 1,800 or above 2,100, and just over half of the restricted doctors had lists above 1,800. These results do not invalidate the arithmetic of the Medical Practices Committee in calculating mean list sizes, nor do they imply an undue delay on the Committee's part in revising the classification of areas as the doctor -patient ratios change; all they show is that by classifying an area on the basis of its mean list size, many doctors will have actual list sizes outside the defined range for the area. The discrepancy assumes financial significance at the border between open and designated areas, where the allowance is paid to a substantial number of GPs with low list sizes and automatically withheld from an even larger number (i.e. those in open areas) whose individual lists nevertheless meet the criterion for designation.

The phenomenon of doctors with 'small' lists being in receipt of a designated area allowance, though numerically significant, may have fewer policy implications than the converse situation of doctors with 'large' lists (i.e. 2,500 or more) being ineligible for the allowance. It is estimated that in 1968 the allowance was withheld from about 7,500 GPs in practices with average lists over 2,500: in 2,000 cases by virtue of practising in designated areas which had not yet qualified for the allowance, and in 5,500 cases by virtue of practising in a non-designated area and therefore being automatically ineligible. If eligibility for the allowance had been based solely on personal list size rather than the average for the area there would thus have been about 6,300 more doctors receiving the allowance in 1968 than was in fact the case - an increase

of more than 200 per cent. Although there are no over-riding reasons why the allowance should be paid on the basis of personal list size, a large number of GPs must nevertheless be wondering whether the designated areas scheme is a mere fantasy. It is to be expected that where the allowance is given on the basis of an area list size some doctors will be ineligible in spite of exceeding the criterion in their personal lists, but it is surprising to find that as many as seven-and-a-half thousand GPs in England were in such a position in 1968.

Partnership size

The survey data revealed some interesting differences between the practice areas in the size of partnerships to which respondents belonged (table 12.2). GPs in single-handed practices constituted 17 per cent of respondents in designated areas but 27 per cent of those in restricted areas, and conversely, doctors from larger partnerships (three or more partners) were relatively over-represented in the designated sample. The greater tendency to practice single-handed in restricted areas is no doubt related to the fact that these areas are generally to be found in rural and small-town communities. Single-handed doctors in all areas were relatively over-represented among GPs with very large and very small lists, and under-represented in the middle range between about 1,600 and 3,000 patients. Regional differences in the proportion of respondents in single-handed practice were slight, and failed to account for the lower proportion of single-handed practitioners in the designated areas.

Group practice allowance

The group practice allowance (GPA) was received equally by doctors in each type of practice area (table 12.3). Just over half of all respondents were receiving a GPA at the time of the survey, but the proportion of doctors in single-handed and two-man practices who were receiving the

allowance was almost twice as great among the non-designated doctors (40 per cent) as in the designated sample (21 per cent).* The allowance was distributed among GPs with varying list sizes in a manner that closely followed the distribution of partnership size: doctors in receipt of the payment tended in both samples to be over-represented among those with medium lists (i.e. between about 1,600 and 3,000) and relatively poorly represented among those with larger and smaller lists.

Health Centres

Respondents were asked whether their main or branch consulting rooms were in a local authority clinic or health centre. The replies show that the overwhelming majority of doctors had no connections at all with a health centre, neither their main nor branch surgeries being located there (table 12.4). But the proportion of practitioners who were connected with a centre, either through their main or branch surgeries, was three times as great in the designated as in the restricted areas (12 per cent against 4 per cent), with the open and intermediate areas ranged evenly between (10 per cent and 6 per cent respectively). The greater tendency in designated areas to practise from health centres could be a consequence of a variety of factors ranging from a greater responsiveness to change among doctors in designated areas to the inadequacy and obsolescence of existing premises in these areas (which may be a good reason for building a health centre).

Ancillary help

Respondents were asked to indicate what ancillary help, either full-time or part-time, they had in or attached to the practice. The response

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* A GPA is normally paid where the group consists of three or more principals, who may or may not be in partnership, but who must work in close association from a common surgery. The fact that a recipient of the allowance need not necessarily be in partnership accounts for the small number of single-handed doctors receiving the allowance.

categories included: secretary/receptionist; district nurse; health visitor; other SRN/SEN; social worker; and other ancillary help. Table 12.5 shows that the proportion of doctors reporting no ancillary help at all rose from 3 per cent in the designated areas to 10 per cent in the restricted areas. The difference is quite small, but it remains even when allowance is made for list and partnership size.

The type of ancillary help among those doctors to whom it was available varied little between the practice areas. About one doctor in five in each area had secretarial/receptionist services only, two in five had a secretary/receptionist and at least one nurse attached to the practice, and about a quarter had these and additional social work help. A slightly higher proportion of doctors in designated than in restricted areas had a nurse working in the practice (65 per cent against 57 per cent), and about a quarter of the GPs in each type of area reported having a secretary or receptionist and a nurse and some other type of worker attached to the practice. Such a high proportion is cause for suspicion. In a few cases the 'other' worker was identified on the questionnaire as a social worker, but in most instances the doctors merely ticked the 'other' response category available on the questionnaire. We do not therefore know what particular skills these workers brought to the practice: they may possibly have been cleaners.

To complement the factual question about any additional staff which doctors actually had in their practices, they were further asked whether they rated their practices in this respect as 'most adequate', 'adequate', 'inadequate' or most inadequate'. The distribution of responses in the two samples was virtually identical, and the mean scale score, calculated by assigning a value of 4 to a 'most adequate' response, 3 to an 'adequate' response, and so on, was 2.9 in both cases. About one doctor in five considered his ancillary help to be 'most adequate', just over half rated it as 'adequate', and only a very small proportion of respondents selected

the least favourable category - 'most inadequate'. Although the proportion of doctors choosing the top category ('most adequate') increased in relation to the number and type of staff actually available, it remained fairly low even among those who had secretarial, nursing and other help. Only 27 per cent of these doctors in the designated sample rated their help as 'most adequate', and a fifth considered it 'inadequate'. The corresponding figures in the non-designated sample were 35 per cent and 13 per cent. It is impossible to tell from their replies whether these doctors remained dissatisfied with the quantity or the quality of the assistance available to them.

Night calls

The final question in this section requested the respondents to indicate the number of nights per week, on average, that they were on call for cases other than obstetrics. The same question had been included in Cartwright's (1967) survey, the results showing that 'a fifth were on call every night, another fifth for five or six nights a week on average, two-fifths for three or four and a fifth for two or less'. On this question, as on several others which were repeated identically from Cartwright's survey, our results differed substantially from hers (table 12.6). Only one in ten of the doctors in the present survey reported that they were generally on call every night of the week, and almost half were required on duty for less than three nights. But, as table 12.6 shows, these proportions varied considerably from one practice area to another, with doctors in restricted areas having by far the least number of free nights available to them. The proportion of respondents generally on call every night was almost four times higher in the restricted than in the designated areas (26 per cent against 7 per cent), and whereas over half (53 per cent) of the designated doctors were on call for two or fewer nights the proportion fell to only 22 per cent in the restricted areas. Respondents in open and intermediate areas were generally in a middle

position between these two extremes. The more favourable position of the doctors in designated areas is not adequately explained by regional variations, for the percentage of these doctors on call for less than three nights in the week was higher than in the non-designated sample within every region except Yorkshire/Humberside and the West Midlands.

An additional factor associated with night duty is the number of partners a doctor has. Cartwright found that the proportion of doctors on call every night of the week fell from 48 per cent among single-handed doctors to only 8 per cent among those with three other partners, and a similar association was found in this survey. But the factor of partnership size did not explain the variations vetween practice areas (table 12.7). Whereas, for example, 30 per cent of the single-handed doctors in designated areas were on duty every night, the proportion was 41 per cent among single-handed practitioners in the non-designated sample; and the percentages of single-handed doctors on call for two or fewer nights were 30 per cent and 19 per cent respectively in two samples. Doctors in large partnerships were on call for correspondingly fewer nights, and hardly any respondents in practices of three or more partners were on call every night of the week, but within each partnership size the differentials remained between the two samples.

Comment

The results of this chapter are important, and will be taken up again in the concluding section. Their significance lies primarily in the conclusion that, contrary to much popular belief, and for whatever reasons, the conditions of general practice in designated areas are somewhat more aligned to contemporary notions of good medical care than those in restricted areas. To the extent that multiple partnerships, based on health centres with a full range of ancillary help, and with adequate free time for the

GP to study and relax, are accepted as valid signs of good general practice, then the greatest room for improvement is seen in those places with the best doctor/patient ratios. To contrast the designated and the restricted areas is, admittedly, to take the extreme cases, but the other practice areas generally fitted evenly between them, and the variations between the designated and the non-designated samples on most of the questions remained even when a control was introduced for regional location. the variations from one practice area to another are astonishingly consistent, and it is difficult to escape the conclusion that what is observed here represents a faithful reflection of what is actually happening up and down the country.

Table 12.1 Individual list size and type of practice area

Individual list size *	Type of practice area			
	Designated	Open	Intermediate	Restricted
Less than 1600	20(2.9)	41(6.6)	28(10.9)	47(29.9)
1600 - 2199	51(7.4)	112(18.1)	83(32.3)	76(48.4)
2200 - 2599	105(15.3)	175(28.2)	83(32.3)	27(17.2)
2600 - 3199	301(43.8)	203(32.7)	48(18.7)	5(3.2)
3200 - 3799	191(27.8)	74(11.9)	14(5.4)	-
3800 or more	19(2.8)	15(2.4)	1(0.4)	2(1.3)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

* Individual list size is taken as the personal list size for single-handed practitioners and the practice average for those in partnerships or group practices

Table 12.2 Number of principals in the partnership and type of practice area

Number of principals in partnership	Type of practice area			
	Designated	Open	Intermediate	Restricted
1	114(16.6)	130(21.0)	51(19.8)	42(26.8)
2	176(25.6)	167(26.9)	73(28.4)	49(31.2)
3	205(29.8)	152(24.5)	55(21.4)	28(17.8)
4	99(14.4)	94(15.2)	42(16.3)	21(13.4)
5 or more	93(13.5)	77(12.4)	36(14.0)	17(10.8)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 12.3 Receipt of group practice allowance and type of practice area

Receipt of group practice allowance	Type of practice area			
	Designated	Open	Intermediate	Restricted
No	289(42.1)	281(45.3)	112(43.6)	73(46.5)
Yes	394(57.4)	336(54.2)	142(55.3)	83(52.9)
Not known	4(0.5)	3(0.5)	3(1.2)	1(0.6)
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 12.4 Attachment to local authority clinic or health centre and type of practice area

Attachment to clinic/health centre	Type of practice area			
	Designated	Open	Intermediate	Restricted
No attachment	595(86.6)	545(87.9)	232(90.3)	151(96.2)
Attachment through main surgery only	44(6.4)	36(5.8)	13(5.1)	6(3.8)
Attachment through branch surgery only	33(4.8)	20(3.2)	3(1.2)	-
Attachment through main and branch surgeries	2(0.3)	5(0.8)	-	-
Not known	13(1.9)	14(2.3)	9(3.5)	-
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 12.5 Ancillary help available in the practice and type of practice area

Ancillary help in practice	Type of practice area			
	Designated	Open	Intermediate	Restricted
No help at all	17(2.5)	26(4.2)	10(3.9)	16(10.2)
Secretary/receptionist only	158(23.0)	164(26.5)	51(19.8)	32(20.4)
Secretary/receptionist and nurse(s)	268(39.0)	233(37.6)	113(44.0)	47(29.9)
Secretary/receptionist nurse(s) and other worker(s)	169(24.6)	135(21.8)	61(23.7)	41(26.1)
Other combinations	72(10.5)	58(9.4)	19(7.4)	21(13.4)
Not known	3(0.4)	4(0.6)	3(1.2)	-
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 12.6 Number of nights on call per week (excluding obstetric cases) and type of practice area

Number of nights on call per week	Type of practice area			
	Designated	Open	Intermediate	Restricted
Every night	48(7.0)	49(7.9)	31(12.1)	41(26.1)
5 or 6 nights	60(8.7)	84(13.5)	34(13.2)	28(17.8)
3 or 4 nights	201(29.3)	202(32.6)	94(36.6)	53(33.8)
Less than 3 nights	364(53.0)	271(43.7)	95(37.0)	35(22.3)
Not known	14(2.0)	14(2.3)	3(1.2)	-
Total	687(100)	620(100)	257(100)	157(100)

Percentages calculated down columns, and included in brackets

Table 12.7 Number of nights on call per week (excluding obstetric cases) and size of partnership

Number of nights on call per week	Number of principals in partnership				Total
	1	2	3	4 or more	
DESIGNATED SAMPLE					
Every night	34(29.8)	10(5.7)	2(1.0)	2(1.0)	48(7.0)
5 or 6 nights	24(21.0)	14(8.0)	12(5.9)	10(5.2)	60(8.7)
3 or 4 nights	21(18.4)	77(43.8)	81(39.5)	22(11.5)	201(29.3)
Less than 3 nights	34(29.8)	69(39.2)	105(51.2)	156(81.3)	364(53.0)
Not known	1(0.9)	6(3.4)	5(2.4)	2(1.0)	14(2.0)
Total	114(100)	176(100)	205(100)	192(100)	687(100)
NON-DESIGNATED SAMPLE					
Every night	92(41.3)	22(7.6)	3(1.3)	4(1.4)	121(11.7)
5 or 6 nights	47(21.1)	46(15.9)	20(8.5)	33(11.5)	146(14.1)
3 or 4 nights	38(17.0)	147(50.9)	105(44.7)	59(20.6)	349(33.8)
Less than 3 nights	43(19.3)	69(23.9)	102(43.4)	187(65.2)	401(38.8)
Not known	3(1.4)	5(1.7)	5(2.1)	4(1.4)	17(1.6)
Total	223(100)	289(100)	235(100)	287(100)	1034(100)

Percentages calculated down columns, and included in brackets

CHAPTER THIRTEEN

THE DOCTOR AND HIS AREA

The historical analysis in chapter 2 touched upon some of the confusion which has existed in the past about the objectives of the designated area allowance. The point was made that although the original intention of the allowance was to encourage more GPs to settle in areas which, in terms of doctor-patient ratios, are suffering from a shortage of manpower, the payment has sometimes been regarded as a form of compensation for doctors whose lot it is to live and work in the supposedly depressed and unattractive regions of the country. The belief appears to be widespread among the medical profession that the designated areas are, as it were, a kind of third world - worthy to receive general medical services, but scarcely fit places in which sensible people would voluntarily choose to live. The replies of many doctors in the survey confirmed the sharp dichotomy which exists in the minds of many GPs between the underprivileged minority in the designated areas and the rest of the population who lead happier lives. But is the distinction really as sharp as this? Are the designated areas in fact as depressed and unattractive as the stereotypic responses of many doctors suggest?

The question is difficult to answer. How is a socially unattractive area to be defined? One approach might be to draw up a list of area indicators (of housing amenities, educational provision, class and income distribution, open spaces, etc.) and then apply them to designated and non-designated areas, measuring the variations between the two groups. However, quite apart from the practical difficulty that the boundaries of practice areas fail to coincide with any other unit for which statistical data are regularly collected, there is the basic problem that the indicators which a research worker might consider important may be different from those which the doctors themselves would accept. An area may be unfavourably rated on a host of 'objective' indicators, yet be wholly acceptable to

the doctors practising there because their desire for, say, an urban working-class environment outweighs the extent to which they perceive such indicators to be negative or undesirable. Even those qualities to which the profession as a whole seems to attach much importance (good housing and educational standards, the availability of cultural and recreational outlets, and the proximity of countryside and coast-line) would presumably be valued in different ways by different doctors. Therefore, in considering the attractiveness of an area as a possible motivational factor we must focus on the doctors' perceptions of an area rather than on any objective features of it, for it is the subjective impact of a locality that will either attract or repel a prospective practitioner.

At the same time, however, a clear distinction must be made between the subjective appraisals of those actually working in the different areas and the impressions of those who have yet to embark in practice. This chapter is concerned with the ways in which the respondents evaluated their own localities, and it must be acknowledged that people who have lived and worked in a locality for a number of years tend to emphasise the more favourable aspects at the expense, perhaps, of those negative features which might have dismayed them at an earlier date. Ideally this chapter should be concerned with the perceptions of doctors about to enter general practice, for it is largely through these people that the stereotypes about good and bad areas are translated into manpower terms, but the sample did not extent to medical students or qualified doctors at risk of being recruited to general practice for the first time.

The respondents in the survey were presented with five area characteristics, and they were invited to assess their localities for each characteristic on a four-point scale of satisfaction. The characteristics were: educational provision, cultural amenities, shopping facilities, recreational facilities, and housing. The four points on the scale, 'very satisfactory', 'satisfactory', 'poor' and 'very poor', were scored

from 4 to 1 respectively, and mean scores were calculated for respondents in each type of practice area. The results, set out in table 13.1, show that the mean scores in open and intermediate areas equalled or exceeded those in designated and restricted areas on each characteristic, and that the scores in restricted areas exceeded those in the designated areas only in the case of recreational facilities, which probably reflects the penchant among GPs, revealed in other questions, for rural sports and pastimes. The same trend is reflected in the number of doctors choosing the highest category ('very satisfactory'), although this is not shown in the table. More respondents in open and intermediate areas chose this particular response category for each of the five area characteristics, and the lowest proportion of choices came from doctors in restricted areas for each characteristic except recreational facilities.

Although these results might perhaps have been predicted in the light of the earlier observation concerning the tendency of people to react favourably about their localities, they are nevertheless somewhat surprising. In particular, the low ratings among doctors in restricted areas (which are generally assumed to be the most attractive to doctors) are quite unexpected. Several possible explanations are suggested. One which is consistent with the data presented in earlier chapters is that the restricted areas are in fact less attractive places to doctors in the sense that a majority of GPs, wherever they are working, would rate them less highly than the designated areas on most of the criteria used in the survey. The important factor may be the non-industrialised nature of many restricted areas: they are generally (but not exclusively) located in small towns and rural districts. From this would follow their relative isolation not only from the centres of medical teaching, research and administration, but also from the centres of entertainment, commerce and, probably, education. The availability of suitable housing and recreational facilities, which are less likely to depend upon proximity to a large urban area, were in fact rated

just as highly in the restricted as in the designated areas - a point which further reinforces this particular interpretation. An alternative explanation of the data, however, may be that doctors in restricted areas were, for whatever reason, a more critical breed than their colleagues in designated areas, and may consequently have evaluated each question against more stringent standards. They may, in other words, have had a generalised tendency to choose lower ratings, and had they also been invited to evaluate some designated areas, would have rated them even lower than their own practice locations.

It is a weakness of a simple rating technique such as this that there can be no certainty which of these two explanations is the better one, but we are inclined towards the former. There appears to be no over-riding reason why the doctors in the restricted areas should, as a category, adopt more critical evaluative standards, and indeed the earlier evidence shows that they did not uniformly choose lower ratings than doctors in designated areas. In some cases the ratings were higher, and in earlier questions which compared the subjective assessments with more objective measures (for example, with respect to direct access to hospital beds and diagnostic facilities) it was shown that a close association existed between the two sets of replies <u>within</u> each sample. None of this is conclusive, but the various pieces of evidence suggest that although the designated areas were generally perceived as less desirable places, socially and environmentally, than the non-designated areas as a whole, they nevertheless compared favourably with the restricted areas alone.

Further analyses of the data indicate that these differences remained even when controlled for age, region, and length of time in practice of doctors in different areas. However, these variables were also themselves in some ways associated with the degree of satisfaction expressed about an area. Older doctors (especially those over 65) often expressed greater

satisfaction than younger GPs, although the tendency was more marked in some questions than in others. The evaluation of educational provisions showed a clear gradient in this respect, with the mean scale scores increasing regularly with age, but it is possible that the stage of family development rather than the doctor's age was the important factor in this case. The responses to the question about cultural amenities showed a similar pattern of rising satisfaction with increasing age, but the availability of suitable housing, by contrast, was rated identically by all doctors within each sample, regardless of their age. Broadly similar trends were seen when the scale scores were distributed according to the length of time which the doctors had spent in their current practices. This is to be expected, since age and length of time in practice were themselves positively related. It is, however, interesting to note that, with the exception of educational facilities, there was no consistent tendency for doctors to react either more or less favourably as their familiarity with the area increased.

Doctors in different regions varied quite widely in the degree of satisfaction which they expressed about their localities; but few clear regional patterns emerged from the data (table 13.2). In the designated sample East Anglia ranked lowest of the eight regions on almost all counts (though the frequency in this region is admittedly low), while the North-West, the East Midlands and the South-East each achieved consistently high rankings. In the non-designated sample, on the other hand, the East Anglian doctors were fairly prominent among those expressing favourable responses (along with those in the South-East, Yorkshire/Humberside and the North-West), whilst those in the East Midlands scored low. In sum, it is clear that substantial inter-regional differences did exist in the doctors' ratings of their areas, but that these variations neither explained the better overall ratings in the non-designated areas, nor revealed any complete consistency between designated and non-designated doctors within any region in their evaluation of their localities.

Table 13.1 Mean scores of doctors' ratings of educational provisions, cultural amenities, shopping facilities, recreational facilities and housing availability, and type of practice area

Mean score of facility rating	Type of practice area			
	Designated	Open	Intermediate	Restricted
Educational provisions	3.0	3.2	3.2	2.7
Cultural amenities	2.7	3.0	3.1	2.6
Shopping facilities	3.2	3.4	3.2	3.0
Recreational facilities	3.0	3.2	3.2	3.1
Housing availability	3.0	3.2	3.2	3.0

Mean scores are calculated as described in the text, page 303-4, and exclude 'not known' responses

Table 13.2 Mean scores of doctors' ratings of educational provisions, cultural amenities, shopping facilities, recreational facilities and housing availability, and standard region of current practice location

Standard region of current practice	Mean score of facility rating				
	Education	Culture	Shopping	Recreation	Housing
DESIGNATED SAMPLE					
North	2.9	2.6	3.1	3.1	2.9
Yorkshire/Humberside	3.0	2.7	3.2	2.9	3.0
East Midlands	3.1	2.9	3.3	3.0	3.2
East Anglia	2.4	2.2	2.9	2.4	3.1
South-East	3.0	2.8	3.2	3.0	3.0
South-West	2.8	2.9	3.4	3.2	3.0
West Midlands	2.9	2.7	3.2	2.9	3.0
North-West	3.1	2.9	3.4	3.1	3.1
NON-DESIGNATED SAMPLE					
North	3.0	2.7	3.0	3.2	2.9
Yorkshire/Humberside	3.2	3.0	3.4	3.2	3.3
East Midlands	3.0	2.7	3.0	3.0	3.0
East Anglia	2.9	2.9	3.2	3.3	3.2
South-East	3.2	3.2	3.4	3.2	3.1
South-West	3.0	2.8	3.2	3.3	3.1
West Midlands	2.9	2.7	2.9	3.0	3.2
North-West	3.2	2.9	3.3	3.2	3.3

CHAPTER FOURTEEN

THE DOCTORS SPEAK

The method of analysis in this concluding chapter of section two changes from the quantitative approach of previous chapters to a more impressionistic level by considering the doctors' own accounts of the factors motivating their locational choices. The material in this chapter, which is drawn partly from the free-answer questions in the main survey and partly from tape-recorded follow-up interviews with a sub-sample of respondents is arranged in three sections: the designated areas allowance; the choice of respondents' current practice locations. and three case histories. The object of the chapter is simply to illustrate some of the conclusions drawn from the earlier analyses: there is no implication that the material used in the chapter is representative of all GPs in the survey.

The designated areas allowance

There was a fairly widespread feeling of scepticism about the effectiveness of the allowance, although by no means all respondents were hostile to the principle of the payment or wished to abandon the scheme entirely. A substantial number of doctors accepted the need for inducements and agreed in principle with the use of cash incentives, but were critical either of the current amount of the allowance or of the regulations governing its payment. (At the time of the survey the two-level system had not yet been introduced.) In all, just over a third expressed views about the allowance which were broadly classified as 'favourable', although many also added riders about the scope and administration of the scheme, and several made it clear in their replies that they were judging the payment as a compensation rather than an inducement.

> I am doubtful if the allowance has any great effect in attracting doctors, although it probably provides some compensation to doctors already in the area who are overloaded.

> I have sacrificed a larger income to find a more congenial practice and I am pleased that people practising in less pleasant surroundings should get paid more.

Typical of the many GPs who approved the payment in principle but who had reservations about it in practice were these replies:

> I think the allowance is reasonable and fair, although with taxation as it is £400 is not enough. The government is already getting doctoring in the designated areas on the cheap, and the strain is so great that an added inducement is needed to encourage more help.

> We are all on very full lists (24,000+ between seven of us) and try as we might we can't get another partner on the basis of three months assistantship and three years to parity. If the designated area allowance was more we could offer better financial terms.

Several reasons were suggested why the allowance has been largely ineffective. The most important was simply that £400 made up far too small a proportion of the average GP's income to constitute a realistic inducement.

> Financial benefit is little encouragement to the doctor who has an excessive workload, and an additional £400 is hardly likely to attract new doctors into an acknowledged 'difficult' area at a time when entrants to practice have so wide a choice of attractive areas which offer very good facilities medically, and early partnerships on excellent terms.

> To be cut off - say, practising in a community of non-whites - this I think is where you need to attract them with money. But £400 just isn't enough for a practice like that where there's no decent medical centre, no night cover and no opportunity to do outside jobs. This to me would be the time when I would need compensating, but a mere £400 wouldn't be enough.

> You take Burnley, for example. I was there in 1950. If it's the same as it was then you wouldn't get me there for less than £2,000 a year extra. I'm quite serious - it was a filthy hole.

Most respondents knew about the allowance and some had fairly strong views about it one way or the other (although a few had apparently never heard of it), but the impression was gained that more might be done to publicise the payment among medical students and doctors in their pre-registration year. To the extent that the higher allowance acts as any kind of incentive at all it will probably be among younger practitioners and those entering general practice for the first time. The new payments were announced after the main survey had been completed, but there were some

indications from the follow-up interviews that younger GPs might take the upper level as a serious inducement. This is a GP of 34:

> At times I suppose just after the income tax has come in you would think yes of course, if you're going to lose £750 worth of income this would be reason enough to make a move. But at other times, when life's okay and you've been enjoying things and nobody's been bloody-minded in the surgery, probably not. (Later in the interview) Just to turn over in one's mind the fact of this plus or minus £750 is a most interesting concept. Yes. It clicks up a bit on the adding machine.

A second criticism of the allowance, voiced by many practitioners, concerned the disincentives inherent in the scheme. One such disincentive was clearly recognised by the Review Body when, in several reports following the introduction of the allowance, the members refused to recommend an increase on the grounds that, should it be fixed at too high a level, the loss would cause financial embarrassment or even hardship to incoming practitioners when the area ceased to be designated. The responses from the survey vindicate the Review Body's fears, for repeatedly the point was made that no doctor in his right mind would set much store by an incentive that was specifically designed to cease as soon as it succeeded. The continuation of the allowance for a concessionary period of three years was often seen as an irrelevant sop. Closely allied to this was a general dissatisfaction with the three-year qualifying period before the allowancee is paid: a doctor moving to a designated area during the qualifying period may well be jeopardising his chances of ever receiving the allowance, and hence the incentive to move is weak.

> This area has been designated for most of my time. When a new doctor enters the place it gets re-classified as open for a few weeks. Thus it has not been continuously designated, and the situation is ridiculous.

> It should be paid during the period of designation, on a yearly basis, and <u>not</u> be paid later when the doctor may have moved or died. The money can then be used to purchase additional time-saving appliances, or to pay locums for extra off-duty, etc.

A more serious disincentive, never considered publicly by the Review Body is that exerted on the existing practitioners in an area, who have a strong financial motivation to retain their allowance by keeping out

newcomers. The temptation probably increases in areas where the average list size is only just above the criterion, where the loss of the allowance would not outweigh the slightly easier workloads resulting from the introduction of new doctors to the area. Respondents were, understandably, reluctant to talk about this particular disincentive, but there was some evidence that in many designated areas an unwritten agreement exists to retain the classification.

> It produces a situation whereby local practitioners see to it that the area stays designated. It is certainly open to abuse.
>
> Once an area is designated for three years there is a tendency for established practitioners not to seek a further partner if his employment would cause the designated status of the area to be lost.

Such disincentives are serious. They will increase as the value of the allowance rises, and the introduction of the two-level system of payment is likely to add a second point where marginal disincentives are particularly high (i.e. where the average list size is just over 3,000). The Review Body's answer to the problem of disincentives (that the prospect of withdrawal of designation from such areas is remote) not only displays a remarkable lack of faith in its own policies, but is also based on shaky assumptions. Areas <u>do</u> become de-designated from time to time, admittedly few to date, but they are likely to do so at an increasing rate in the future for reasons largely unconnected with the allowance (chapter 5). We discuss various ways by which these disincentives might be removed in the concluding chapter.

A third major criticism of the allowance centred on the arbitrary definitions involved in its administration. Doctors complained about the narrowness of designating an area purely on its average list size, and about the anomalies involved in the arbitrary fixing of medical practice area boundaries.

> I practise on the border of a designated area into which I go to treat many of my patients. Likewise the doctors in the designated area without exception have many patients in my area. I consider

> in my case this is grossly unfair and have even had a personal hearing in London. This principle still rankles a great deal.
>
> I am surrounded by designated areas where strange to say there is little colour problem, few fights at night and few drunks. The morbidity is less than in my area judging from the load of work of my colleagues in these areas whenever I meet tham.
>
> The only proper criterion for extra payment is work done related to difficulties encountered. The present assessment is purely theoretical, e.g. by moving our surgery 200 yards down the road we would be paid £1,600 p.a. gross extra for the same workload.

Comments such as these tend to ignore the realities of the situation. It would seem, for example, that GPs who might be eligible for an allowance by virtue of having 60 per cent or more of their patients living in a designated area are not always aware of the possibility, and however the boundaries are drawn there will always be some cases of anomaly and hardship between each side. Nevertheless, there appears to be a strong case for reconsidering the conditions upon which the allowance is contingent, for as well as the difficulties mentioned by the respondents there is the additional problem, quantified in chapter 12, of GPs with personal lists above 2,500 failing for one reason or another actually to receive the allowance.

Finally, a small section of doctors declared themselves opposed to the allowance in principle.

> My area is designated. I feel that the number of patients in my practice (partnership of two) is huge, and we have to work very hard, day and night. We do our best to provide the best possible medical service. It is very strenuous physically and mentally. I do not think an extra payment of £400 is the answer to this problem. I personally do not think that even £1,000 is the real answer. The principle is wrong. I would very much like to reduce the number of patients and provide a better medical service.

In most cases the objection appeared to represent a specific example of a more fundamental hostility to the whole concept of a National Health Service. One doctor, for instance, described the allowance as 'a pathetic attempt to treat a symptom, not the cause', another said it was a terrible indictment of the Health Service that such an allowance is needed at all',

and a third described his feelings about the payments as 'quite unprintable'. The politically oriented responses are typified in this answer:

> I consider this unfair, as I believe in a free-floating market, with restoration of the right to buy and sell practices as before 1948. Such a problem would not then arise.

The choice of current practice location

Respondents in the main survey were asked, in an open-ended question, what influenced their choice of area in which to practise. The responses, which are grouped on the basis of a content analysis devised by the London Survey Research Centre, are summarised in table 14.1. The totals are the unweighted aggregates of both samples.

The commonest reason given by the doctors in the survey for their present location was simply that they had little or no choice in the matter. A vacancy occurring at a time when jobs are scarce is not lightly disregarded, even though its location may be far from ideal. Doctors whose replies were classified in this way included those who attributed their present location to chance, pure accident, or luck. Others stated that they did not choose the place, and would ideally have chosen to live elsewhere. About a quarter of all the doctors gave this sort of reply, but there were differences between types of areas and standard regions. A third of practitioners in designated areas, but only a fifth of those in intermediate or restricted areas answered in this way, and the proportions were also higher in the North, the East Midlands and the North-West than elsewhere. Doctors aged between 40 and 49 at the time of the survey were more likely than either their older or their younger colleagues to report an absence of real choice. These men were entering their current practices in the early 1950s when vacancies were extremely scarce. One might have expected more of these doctors, especially those remaining dissatisfied with their areas, to have moved on in subsequent years when vacancies outnumbered applicants; but many

had apparently never looked elsewhere, for reasons of self-confessed laziness of a disinclination to uproot.

Some of the replies of the survey respondents that were classified in this group are the following.

> Joined practice in 1950. 90 applicants. Short-listed in London. Damn lucky to be accepted.

> No choice at all. No money - could not have paid removal expenses - and two babies. In a full-time industrial medical officer's post as an assistant with no hope of promotion and bored to death. At that time (1953) there was an artificial surplus of doctors and jobs were hard to come by. I was offered a partnership on a very thin financial basis and took the chance. I continue to this day to live by courtesy of the Bank Manager.

> At that particular time (I'm talking about 1953) it was nothing to apply for fifty vacancies and not even get shortlisted. In this case I rang the man up and he told me that 200 people had applied. That meant they weren't going to get it and would have to apply elsewhere. Eventually I got an assistantship (in a seaside town) and after twelve months they offered me a view.

> When I was looking for a job it didn't worry me where I went. The reason I happen to be here is that I applied to this Executive Council, and to about twenty-nine others. I was interviewed for about twelve jobs; five times in Liverpool and twice in Sussex. The only reason I'm here is that I happened to get the job here. The next job might have been in Lancashire, and I'd have been there.

The enormous surplus of doctors relative to vacancies in the 1950s undoubtedly created a climate of competition and uncertainty that is unlikely to recur within the next decade at least. For a large number of doctors their choice of where to practise was simply not a choice in a volitional sense: it was a solution forced upon them and, often, gratefully accepted despite harsh or detrimental terms.

The next commonest reason for the choice of practice area, mentioned by about one in five of all doctors, was the influence of family or friends. Ties of kinship were apparently stronger than those of friendship, and were mentioned slightly more frequently by doctors in designated and open than in intermediate and restricted areas. The inter-regional differences were more marked. The proportion of doctors mentioning the influence of family

ties was higher than average in the North, the North-West and Yorkshire/ Humberside, and lower than average in the East and West Midlands and the South-East. There were also marked variations according to age, with the younger doctors being much more likely than older practitioners to report a reason of this kind. Almost a third of those under 40 mentioned family reasons for choosing their practice location.

Of particular interest in this context is the influence which a wife has on her husband's decisions about when to move and where to settle. Chapter 10 explored the relationship between a doctor's current practice area and his wife's home area, and it was shown that the influence is roughly on a par with that of the medical school. It was clear from, the interviews, however, that although many doctors had not in fact chosen to settle in their wives' home areas, most had regarded them as equal partners in decisions about moving.

> I think that if anybody is making a move, the place should be assessed by the wife in the first instance. I would say that this is the most important advice I could pass on to young doctors, let the wife assess the new place first.

In some instances, in fact, the wife's views seem to have been the dominant ones.

> I think I has as much influence as a wife should have on her husband. At that time it was a mental hospital or divorce, so I suppose it was fairly strong. I scanned the BMJ, I sent for the forms, I filled them in, and he signed them. We were both in agreement that we should move, and I went through the BMJ with a toothcomb and did everything.

More commonly, a wife's difficulties were the basis for a joint decision to move.

> My wife didn't get on with my senior partner. He used to swear at her over the 'phone. He expected her to be there all the time to answer the 'phone. She was out in the garden one day hanging up nappies and was a long time answering the 'phone and he was quite abusive to her. Well, she was unhappy, so we decided to leave. I applied for some posts in Scotland to please my wife.

The way in which the decision processes within a family change over time is well illustrated by this GP's wife in the East Midlands:

> When we came here it was primarily John who decided; he was the one who was going to be working in whichever area it was. I came down of course and I saw the house and I saw the area and was happy to come, but I don't think the decision was really mine. But if we are going to move now it would be a family decision. There's all sorts of things, schools, and all amenities to be taken into consideration as well. Ten years ago it was different.

Closely allied to the influence of family and friendship ties are the pressures and opportunities offered by medical contacts in the area. In many cases these professional considerations were indistinguishable from family ties, for almost a quarter of all respondents were themselves the sons or daughters of doctors, and many of them had entered the family practice.

> Strong family ties - my father and grandfather before him had been in general medical practice in this area, which I consequently knew well before entering practice here myself.

> My father-in-law was in practice here: he had been working far harder than I ever had during the war, he had had a terrible war and was tired out, and he said, 'I want you to come right away, I can't go on much longer.' So I came.

In all, about one in ten of the doctors in the survey said they had chosen their present location as the result of an offer of a vacancy by a relative or friend, and a similar proportion as the result of medical contacts made in the area when working there. This later reason was mentioned somewhat more frequently by doctors in designated and open than in intermediate and restricted areas, and was also more prominent among the replies of doctors in northern and western parts of the country than of those in southern and eastern regions. Younger doctors mentioned this reason more frequently than older practitioners.

Some cases that were classified under this heading were highly individualistic:

> A tip from my brother, a GP in New Zealand, that the senior partner here was 83 and contemplating retirement. I carried the old B. on my back for four painful years.

Much more typical were these cases, which also illustrate the significance of the siting of medical schools.

> I had been attached to this practice for several weeks in my final year at medical school, as an introduction to general practice.
>
> I had completed a period as surgical registrar at the local infirmary just before joining the practice. The other two principals were well known to me, and were recognised in S. as very good clinicians.

About one doctor in eight reported choosing his practice because he liked the area and had always wanted to practise there. Many offered no further explanation, but others mentioned attractive features such as the pleasant character of a town, its size, historical associations, favourable climate, and good communications. An area characteristic mentioned sufficiently often to justify separate tabulation was rural or coastal location. One doctor in seven gave this as the reason for his choice, and for many general practitioners currently practising in urban areas it was a desirable future goal.

There were, expectedly, substantial variations by practice areas and regions in the proportions of respondents offering this type of explanation. Positive feelings about the area were lowest among doctors in designated areas and highest among those in restricted areas; indeed, almost two-fifths of the latter respondents had chosen their practices because of their rural or coastal situations. Regional variations were equally pronounced. East Anglia and the South-West contained the highest proportions of respondents selecting country or seaside practices, and the South-East and South-West were the most favoured regions generally. For example, 18 per cent of doctors in the South-West reported choosing their practices because they liked the area, compared with only four per cent in the West Midlands.

> Having been born in Somerset and living a greater part of my formative years in and around Exmoor and being very interested in all country pursuits, it was only natural that I should seize the opportunity to return when this idyllic rural practice became available.

> It is a quiet, rural area with a small market town and modest inland resort as its centre. The population is fairly stable, of varied type but with no extremes of poverty or affluence. We are within reasonable distance of family connections, the Welsh mountains and the Welsh coast. We are surrounded by unspoilt country of great beauty.
>
> Having done locums in town and country practices I felt I could not tolerate normal impersonal town practice. After searching for months for a country practice with a nice period house I eventually found this place and was offered the vacancy by the Executive Council.

The theme of escaping from the suffocation of the cities ran strongly through the declared motives of rural doctors - especially those in the West country, many of whom had formerly practised in urban settings. The yearning for the peace and quiet of rural practice probably explains the concentration of restricted areas in regions and counties with low urban densities, notwithstanding the financial loss that is involved in taking a smaller list and the greater isolation from large medical centres. There were signs, however, that younger doctors placed greater emphasis on professional satisfaction than on environmental solitude, and it is likely that in future they will be more attracted by recent innovations in the structure of general practice (for example the tendency towards group practice, health centres, the employment of ancillary staff, increasing contacts with hospitals, the use of more sophisticated equipment etc.) than by the joys of small rural partnerships, lacking as they do many of these modern aids and innovations.

Good points about the practice itself were frequently mentioned as reasons for the original choice. Fourteen per cent of all doctors in the survey mentioned some specific aspect of the practice that had attracted them; for example the size of partnership or group; the fact that it was single-handed or group practice; well-run and purpose-built surgery offering well-equipped accommodation; good prospects for expansion; opportunities for private practice. The comments show the great variety of preferences and views of what constitutes a good practice. Eight per

cent of respondents reported choosing the practice because of the likelihood or expectation of good relations with partners and seven per cent because of easy access to diagnostic facilities, the proximity of good hospitals, the availability of beds for general-practitioner care, and the value of good relations with hospital medical staff. The following replies illustrate this theme.

> I chose the practice - the area was decided by chance. It was a group practice with good hospital facilities and the possibility of anaesthetic sessions.
>
> An attractive advertisement specifying: 1. Rural area, 2, Dispensing practice, 3. Expanding practice, 4. Interest in scientific medicine. Discovered at interview: 1. The obviously high standard of medicine practised by the principal, 2. The fact that he would make an excellent senior partner (he did, and did better still be resigning after four years), 3. The availability of hospital sessions, 4. Access to diagnostic facilities.

Younger doctors were generally more influenced by these considerations than older ones, and it is likely that entrants to general practice will increasingly be attracted by efficient and well-run partnerships, with adequate supporting services and opportunities for hospital work, etc. Some of the older doctors in the survey deprecated this trend, arguing that modern aids and facilities do not add to a man's competence as a family doctor and can only serve to attract second-rate practitioners seeking to hide their inadequacies behind an aura of scientific medicine; but this was a minority view. Much more common was the opinion that money spent on improving practice conditions in the unattractive areas would have a much greater effect in attracting doctors to such places than a fairly small financial carrot, but such opinions seemed often to rest on the assumption that practice conditions are invariably and uniformly worse in the designated areas.

Some case histories

To illustrate some of the diverse routes through which GPs have entered their current practices three case studies are presented. They are not claimed to be typical in any sense - indeed they have been deliberately

selected for their particularly interesting (and therefore unusual) features - but they usefully illustrate the complex interaction of events which determine the geographical orientation of family doctors. The studies are based on edited extracts from the tape-recorded interviews, and certain details have been eliminated or falsified to preserve the doctor's anonymity. Each doctor has given permission for his story to be published.

Dr. A., practising in the West country

One day after the results came out in medical school a friend said where are you going to live? I said, I don't care, as long as it isn't a teaching hospital. I had general practice in mind from the word go, so I knew the widest experience was to be had in general hospitals. He said, I am off to Lancashire, how about joining me? So I just went off to Lancashire. I remained there for two years. It was an excellent experience because I literally worked in all hospital departments. As house surgeon you did gynaecology and eyes as well. As house physician you have the VD beds and the skin beds. As casualty, well you are the all-rounder in the hospital. It was very, very good experience. The hospital had 200 beds and it carried just the right basic work for general practice. From there I went to a maternity hospital in the midlands because I wanted a D.Obst., and I was given a great deal of work that would normally have been done by registrars or senior registrars. I did eight months obstetrics and then went on to do paediatrics in the north-east. And then a short time after I had finished my paediatrics I went to the orthopaedic hospital as anaesthetist looking for a post in general practice. The big fact when I applied for a new practice was nothing to do with medicine - I didn't drive. So one or two practices that I looked at said, well sorry, old boy, if you can't drive you're not much good to us. That was why I had to turn down an assistantship in Cumberland. I was interviewed for other practices: there was one at Newcastle and one near Durham. That was an awful place, rows and rows of council houses and this doctor's house almost in the middle of them. We arrived on a Sunday afternoon, and he was obviously interviewing several people. We sat in the dining room along with all the others. The previous assistant told us that he had been thrown out, and that the principal was having a series of assistants. It was a very curious set-up, the man was alcoholic or something, and we didn't go there.

Then I was asked to go back to Lancashire where I'd done my first hospital job. It was a contact I had made through the hospital, but I wasn't very keen. It's a sleepy place, a very large Jewish community and people who come from the cotton towns. There was quite a lot of private practice but the place was over-doctored, and the opposition was strong. Eventually I got an assistantship with view in the midlands. I took it because it was the only place where the partner presented the earnings for the practice and said, your future here is extremely secure. He said, I would inherit the private patients and the factories which were extremely lucrative. He was offering £200 more than the average at the time,

a large Victorian house with eight bedrooms and a car. I had no money at all at this time, so beggars can't be choosers. It was obvious from the moment I got there that I would have to run the practice despite the fact that he was the senior man. He did four half days a week and disappeared to the West Indies every winter, so I was literally running a one-man show, covering everything. Looking back we were absolute fools, we fell for the lot.

And my wife was unhappy from the moment we arrived. (Mrs. A: It was so dismal and drab, and I became depressed. One day was exactly like the last and I knew tomorrow would be exactly the same again and I couldn't look forward to anything. All I could see was the year ahead being exactly the same as the past one.) After three or four years it became very obvious to me that my wife would not settle there, and from about the fourth year we started looking for other practices. It became almost an obsession, so much so that I applied for practices that I knew I would damn well hate. It was quite a situation to be in, living in an environment to which neither of us was accustomed. I was from Scotland and my wife from the south-west and there we were in the industrial midlands. When we started looking for practices my wife was mad keen on Edinburgh, and I must have looked at five or six practices in Edinburgh over the years. But I wasn't all that keen. You know what Edinburgh is like, tall terraced houses, I didn't fancy that. I was offered three practices in Edinburgh and turned them all down, mainly because the houses were not what I wanted. The practices were in many ways suitable but the housing situation wasn't. We had also got used to running a large practice with a good income so we had got used to a standard of living that no practices that we looked at in Scotland could provide. We liked to wine and dine a bit. We also looked at two practices in Aberdeenshire, but they didn't appeal to me because one of them involved running a maternity clinic of approximately 100 beds single-handed, which meant a lot of night work which I didn't fancy. The other thing that put me off was when I stopped at a place and asked a man if he could direct me to the late doctor's house (this was a death vacancy). He gave me full directions but I didn't understand two words he said. I said to my wife we won't bother to see the widow, I can't understand a word they say. I had really set my sights on a seaside or country practice as my ideal, and of course this was the pattern before the war when you were prepared to spend ten years in an industrial practice to acquire the capital to buy a practice in a nice seaside town. I saw no reason whatsoever why the Health Service should change this practice. We applied for practice after practice in the south-west and never got short-listed. I could never understand this. If you weren't short-listed the executive council told you who had been appointed, and we used to look pop-eyed at these letters which came; and I would go off to the public library and read the qualifications of these people, and they weren't nearly as good as mine. We decided that perhaps my accent was wrong.

Well, we looked at these practices regularly for about six years, in Devon and Cornwall to start with but then in Shrewsbury, Sutton Coldfield, another two in Warwickshire, and several in the Birmingham area. Then things finally came to a head just before my partner retired. We had this enormous house, you see, and I had bought a half share in it. The senior partner had had two other partners before I joined the practice, and the house was divided into two, with one partner living in each end of the house. Then out of the

blue one day, without telling us, this family of father, mother and child arrived, asking for the key to get into the flat, whilst he was on holiday. (Mrs. A: I was about seven months pregnant and I sobbed my heart out. It was a terrible experience, you know, it was getting dark about seven, it was in October, and the man knocked at the door and said, 'Can I have the key?' and I said, 'What key?' He said 'To the flat next door,' so I said, 'What are you going to do? I had visions of alterations or something, and he said, 'We are moving in,' and I asked, 'Who's we?' He said, 'My wife and child and myself.' That was the end as far as I was concerned, and I remember they moved in on the Saturday, I saw this van arrive and it knocked down the cable for the lights to the garage. Mother came along too and knocked at the door and said, which is my daughter's clothes-line? I said, neither, they both belong to me. It was a nightmare.) Then he converted the outhouses into four garages, and we had people whizzing in and out of the back in their cars with little toddlers running around. And then the coloured people started to come in, and all in all that was the beginning of the end.

I started applying far more intensely for practices at this time, but by this time I was getting a bit more choosy, and I said to myself, if I am making a move I might as well make a real move. And it was at this time that a friend in South Africa kept pestering me, why not come and join me, I'm making £20,000 and I will give you a half share. He 'phoned at eight o'clock one day all the way from South Africa and said, for God's sake come and join me here, so I said to my wife shall we go and have a look at it? I had serious reservations as to whether she would like it, but she said, all right, let's get out of here anyway and go and have a look at it. There was a lot of trouble selling the house because the new man hadn't got any capital and couldn't raise a mortgage, and the council would only give him a £5,000 mortgage. So I attended a council meeting and I said, well, to help you out (because otherwise the place would have been without a doctor) I am prepared to sell the house for £5,000 which means my making a loss of about £2,500. They said, well this is fantastically good of you, and they gave him the mortgage for it then. But we didn't do too well out of it.

We arrived in South Africa with the temperature well over 100, and I could see my wife wasn't really taken by this. And within a very short while it was obvious that my friend didn't really want me in with him because he was always showing me advertisements of practices in Durban and he kept saying, I would recommend you to go and look at these. We then discovered that he had already asked three other people out on the same pretext, but after nine years he still hadn't taken a partner. We could never work this one out at all because, as I said, he had even telephoned me at eight o'clock one morning to ask me to join him. He was making about £24,000 a year and he hoped that in subsequent years it would exceed £30,000, and we think his reason for asking us to go was probably something as trivial as showing us how well he had done. Well, we came back very quickly, taking a holiday cruise on the way, and we stayed with my wife's relatives in the south-west. By this time I was quite certain I did not want to practise again in an industrial area, that it would have to be a country practice, so I was quite prepared to do locums for a long spell.

I started off as a locum in a holiday camp in the north of England, which was an absolutely killing job, believe it or not, because of the numbers involved. Then someone who knew us in the midlands

wrote to say he was forming a group practice and would we go and join him. He offered £100 a week while I was making up my mind. I said I don't suppose for one moment I shall join you because I spent twelve years there and was only too glad to get out; but I'm quite happy to have £100 a week while I'm deciding. So we went there, and then several executive councils in the area heard that I was back again in the midlands and instead of me applying for practice vacancies I was getting the clerks of the councils ringing me up saying will you come and practise in our town. But we really felt at this stage, having taken the enormous step of going to South Africa, that if we didn't make our stand then we never would. Well, after that job I had another locum in Staffordshire, and I also looked at two posts in Scotland, but we just didn't have the money at that time to buy the houses or premises. Then there were these two jobs going in the west country so I applied almost as a matter of routine. After applying we went down to visit my wife's mother for a weekend and we came and had a look at this one, but we weren't at all inspired. My wife has always been attracted to the bright lights, and she was wondering what on earth she would do with herself. A little while later we were saying that we should have heard by now who got those two practices, and blow me the post came, and it was a letter from the Medical Practices Committee asking me to be interviewed in London on the Wednesday. I'd never heard of such a thing in my life: I thought there was something fishy about the practice. I asked some colleagues for their advice and they said I might as well go. So with a very casual letter, because this was a very foggy time, I said, if the fog isn't too bad I shall appear before your Committee; if it is very foggy I shall not appear.

It was a lovely sunny day on the Wednesday, so off I went. Two were there to be interviewed, we had both recently returned from abroad, and the other one had connections in this part of the world; so he was well placed. He was in with the Committee for half an hour, and he came out sweating. He said, they've got tabs on you, they know every move you've ever made in your life in there. I asked whether they knew about his being in Canada (because he hadn't told them) and he said, yes. But they rattled through my interview in five minutes, and then they called me back and said, well, Dr. A., it's the unanimous decision of this Committee that you are the best man to fill this vacancy. Will you accept? I said, yes. One of them then said don't do anything yet because there will almost certainly be an appeal. Well an appeal was duly lodged by the executive council over the Committee's decision to appoint a doctor over the heads of the local people and in preference to a local candidate; but the Minister turned it down, so here we are.

Dr. B., practising in the East Midlands

After I qualified I was allowed one year in house jobs until I had to do my national service, so I went into the Air Force for a couple of years, but wanting ultimately to do general practice. Prior to demob I started getting 'phone calls from a practice in Sussex asking if I would go down as a trainee assistant for a year. It had been my home, so there was no problem of accommodation, and that's where I did my assistantship. In fact I stayed in Sussex for fifteen months because I started at the beginning of a summer spell, and at the end of the twelve months the partner asked me if I would stay on and cover the holidays. I'd been applying for the

last nine months, but didn't have anything, so I stayed.

When I got down to the last three months the Practice Bureau started sending me things. I was applying all over the shop in the south, but I wasn't even shortlisted. They didn't want to know me. The second holiday spell finished and we set off up to our home in Lancashire on a fortnight's holiday with pay, to find, on arrival, that a letter had been dropped in earlier by a doctor in the town. His partner, who had been my wife's family doctor for years and years had died about a year previously, and poor little Dr. M. had been struggling along on his own. He had had one or two assistants who just didn't work out; either they were unsatisfactory from the working point of view, or, lending them one of his cars, they wrote it off. He hadn't had a holiday since his partner had died. I found this note, if I hadn't got anything fixed up and I was at a loose end would I be interested? So I went round and within a week I had started. But I was still applying for jobs. We had one child and wanted to increase the family, but I thought it wouldn't be fair until we had settled somewhere. So I went on applying, with a testimonial from Dr. M. to add to the Sussex testimonial. You see, there was no chance of a partnership in that practice. The old partner, who had been my wife's family doctor, had got a son struggling through finals at Manchester and kept failing, and the old boy on his deathbed made Dr. M. promise to keep the practice open for his son. So after I had been with him for a bit Dr. M. said, I'd like you to stay for ever, you go down here very well, but I must keep my promise. He didn't stand in my way when I was applying.

We looked at lots of places. One week we were in Hampshire and a fortnight later in Nottinghamshire. But even when I had been shortlisted I either heard nothing or got a stereotyped note saying thank you for coming over etc. but the post has been filled by a friend of one of the partners. I wanted to go south, somewhere near the sea, but thought I was reaching out of my depth to get there. Earlier the Practices Bureau had warned me that the average waiting time from getting on their books till getting settled was two years, and people wanting to go south were waiting up to five years. We nearly got several posts but they were filled by friends or relatives. It went on and on like that and then a vacancy came up in the south-east with an Indian doctor. Well frankly I couldn't care less who a person is if you get along all right and like them. So I went down for an interview and he seemed a nice chap. He presented the practice in glowing terms, growing in numbers, etc., so down I went. He took me on instantly. But within a fortnight of starting only three people had turned up at the surgery. A request for a house call came in only about twice a week, and altogether this didn't add up to a practice of three and a half thousand and growing. The trouble was I couldn't get him pinned down. He had a brother running a restaurant up in London, and most evenings he would go up there and then the next day he'd be sleeping it off. After a fortnight I went in to the Clerk of the Executive Council and said, 'Look, what is the position?' He said, 'Well, I am not allowed to divulge this.' I said, 'I know you aren't officially, but I have in fact come down here with the intention of being an assistant with view to partnership and I can't pin Dr. H. down into bringing me in. But it all sounds very, very wrong to me that the practice is being grossly misrepresented, and I would just like your confirmation one way or the other.' And he said, 'All right, under those circumstances I will tell you. The numbers for months have been dropping at the rate of 80 a week, the practice is now under 2,000 and still dropping.' I then confronted

Dr. H. the next time we linked up, and he agreed that this was in fact the case, but he wanted me to stay and offered me instant partnership. I said the numbers left aren't really enough to support one let alone two and he said, 'Well, if you stay you can have the whole of the take.' I said, that was stupid. He didn't even own his own house, and he was renting surgery accommodation underneath his furnished flat. So I said, 'I'm awfully sorry, I like it here, but there's no future for two doctors in this practice.' Then I rang back to Dr. M. in Lancashire and asked if he'd got another assistant yet. He said, no. I asked why not and he said, 'I've been waiting to get a 'phone call from you.' So back I went. My wife had been there all the time (I'd been staying in a guest house in the south-east) and so we had smiles and handshakes all round. The old partner's son had failed his finals again, I started applying all over again, and it was like old times.

I applied for about five town practices altogether in a bunch. I basically wanted a town practice in a partnership, but not in a city - not London or Birmingham. I'd seen enough of these lone wolves scratching around, no time off, wives acting as receptionists. I wanted to get into a partnership and climb up with time. This practice was one of the five and one evening there was a 'phone call from the senior partner asking us to come over on the Sunday. I said I would be delighted, but I would first have to check with Dr. M. because he might have made alternative arrangements. But the senior partner wasn't listening: he just breezed on. 'We'll see you at 11 o'clock at such-and-such a place. Cheerio!' Immediately the 'phone went again; it was Dr. M. 'Have you just had a call from Dr. S. in - ?' Yes. 'Well, the crafty old devil must have booked a couple of rapid calls and asked for me to be blocked while he was ringing you. He's just told me you're going over on Sunday!'

So we came over and were taken for a quick drive round. We were given a meal at the Midland Hotel, looked at the surgery house, this, that and the other, and then went back to have tea with the other partners. Before we left the senior partner turned up again and said, We'd like to have you but you must start a week today. If you can't come we'll get somebody else.' Just like that. So I came over the following Sunday and moved into the surgery house with the previous assistant and his wife for ten days until they moved out. We'd scarcely heard of the place before we came here. We accepted more or less on the spur of the moment that Sunday. All we wanted was to get settled, and we didn't mind where it was then. We only wanted the house and the job. We had never thought of the people or what things were really like.

Dr. C., practising in the West Midlands

While I was finishing my pre-registration jobs I was looking in the journals for a suitable trainee post. I wanted to be a GP and I wanted to go into practice with a traineeship behind me. There was nothing in the area of my hospital so I had a free choice of the country. I was married a year before I was qualified and although we both come from Manchester, we were not committed to that area in any way. We thought we would like to try further south. We had some friends in the midlands, and when we visited them for weekends we often thought how splendid it would be to live within easy reach of them. We had the idea then that the 'county town' type of practice would best suit our 'image', somewhere in the band of country between Shrewsbury and Leicester, and Gloucester and Luton.

In the BMJ there was a traineeship advertised in Oxfordshire, which I applied for. The doctor there was delighted that someone from the north had applied and he made me very welcome. I spent a most pleasant year with him and then started looking for a good assistantship.

We began looking in the area from Hereford across to Leicester, south of Birmingham and preferably on the Worcestershire side. Every week I went through all the advertisements in the BMJ that were possibilities. There were perhaps twenty to thirty jobs each week. I had a duplicated 'curriculum vitae' and I sent a copy with a covering letter to each advertisement that interested us. I also approached the Medical Practices Bureau in London, and through them I heard of an assistantship in Nottinghamshire. I went for an interview there. It was a mining village and the doctor's house was an old mansion, standing in beautiful grounds with a small bungalow at the entrance. I was offered the job, and told that I would be living in the bungalow, but we couldn't see it at that time as it was occupied. I was not getting any response to my applications and I had not enough capital to remain unemployed so I was in no position to turn it down. We spent all our spare time - and money - making the place habitable, for the first few weeks after we moved in. The bungalow we were put into was disgusting, and we had to spend about £300 on it. It hadn't been touched for twenty years. It was filthy - not just not decorated but filthy - and we disinfested it of silverfish, cockroaches and its sundry mice and put in new fireplaces, stripped the bathroom out, well, we had got to live there. We recouped some of our money in salary I suppose, but he got a very nice bungalow out of it. The area wasn't what we had expected, either. It was a drab mining practice in a drab mining area, and as far removed from a 'county town' atmosphere as it was possible to get. After about four months, and several disagreements with the principal over gross inequalities in the duties in the practice, I started to look for another post.

I was getting a bit more experienced. I had an interview in Worcestershire and another in Staffordshire. The doctors there had the area buttoned up, it was a monopoly organisation, and they also ran a little hospital. It was very nice, but it was a condition of entry into the practice that we bought the retiring partner's house at £8,000. All we could raise in loans was about £1,500. We didn't hear any more about that practice. I also went for an interview in Manchester, but I was eventually offered and took up an assistantship with view in Herefordshire. We were only there a few months, because it became increasingly clear the I would never be offered the partnership. I was the eighth or ninth tenant of the post, and partnership had never been offered to any of them.

We had to do something other than abortive assistantships, so I thought that by doing locums instead of assistantships I would get better known among GPs in an area. I was struck by the casualness of it all. You finished one locum and then you met another doctor, and it all seemed to be very friendly and casual. I certainly found that doing locums I got a much better insight into what a practice was like, through the patients and through their general attitude towards the practice. They'd got the practice weighed up far better than ever I could in a short period of time, and I soon rumbled that this was a very good way of judging a practice. I did quite a lot of locums - in North Wales, Manchester, Cheshire, Derbyshire, London, Herefordshire, Cheshire again and Staffordshire. It was a hand-to-mouth existence; you would do one job for a fortnight or a month, and at the end of the

month you were often still looking for a job to follow on. And all the time I was still applying for interesting practice vacancies, and single-handed practices advertised by executive councils.

I was short-listed for several posts, and when I talked to the other candidates I found that they were having the same difficulties in obtaining a career post. My two university friends also found this period very frustrating, and they both went to Australia, where the different situation enabled them to choose positions that suited them. I was interviewed for two jobs in Lancashire, both on the same day. The morning interview was for a vacancy where the doctor had been struck off. I was offered that one on the spot but I turned it down because I was confident of getting the second job - a death vacancy which I was already temporarily filling as a locum. In fact I was talking to one of the other applicants, a prison doctor, and he felt he was really wasting his time because the sitting tenant always got these vacancies. But in the end he got it, not me. This was all on the same day. I had to make the first decision in the morning (the one I turned down); they wouldn't let me wait until the afternoon to see if I got the death vacancy.

There were other interviews, but this practice I am now in was the only one I was offered. There were seventy applicants for it when it was advertised twelve years ago. It was about my thirtieth application for an Executive Council post and the fifth for which I had been short-listed. It took me from January 1955 until June 1958. You simply cannot talk about <u>choosing</u> an area under these conditions.

Table 14.1 Percentage distribution of doctors' reasons for choice of current practice location and type of practice area

Reasons for choice	Type of practice area					Total
	Designated		Open	Intermediate	Restricted	
	With allowance	Without allowance				
Little choice	33	33	27	22	21	28
Family/friends	18	21	20	15	11	18
Medical contacts	12	18	14	9	8	13
Offer from relative/friend	9	13	11	11	11	11
Favoured area	7	11	14	15	14	12
Rural/coastal location	8	7	12	27	38	15
Practice conditions	11	7	13	19	29	14
Congenial partners	7	10	8	8	8	8
Hospital access	6	6	8	8	10	7
Financial considerations	12	9	6	7	4	8
No. of doctors (=100%)	414	273	620	257	157	1721

SECTION THREE

CONCEPTS AND POLICIES

CHAPTER FIFTEEN

EQUALITY AND EQUITY

Anderson (1972), in his comparative study of the health services of Sweden, Britain and the United States, draws attention to the 'fantastic phenomenon' of a persistent, albeit uneven, search in most industrial countries during the last hundred years for a principle of distributive justice or equity in the deployment of health care resources. Two questions are posed: what is the historical and continuing source of this commitment to policies of distributive justice?; what particular interpretation of justice or equity is embodied, either explicitly or by implication, in the substance of the policies? The former question, though fascinating from the perspective of political philosophy, is quite beyond the scope of this thesis. Anderson traces a number of strands in what he calls the liberal-democratic traditions in the three countries in his study which have, in different ways, fuelled the continuing search for an equitable solution. In the case of Britain, he emphasises historical persistence of 'noblesse oblige' as an important factor in the emergence of a centrally financed health service rather than a welfare- or insurance-based system of health care; but this very conclusion must caution against the acceptance of over-simplified explanations.

Whatever the collective motivations may be, the notion of distributive justice (particularly in a spatial context) has been invoked as a central theme in explaining or justifying a wide range of post-war policies in the National Health Service. It has been seen (chapter 2) that the desire to eliminate the worst imbalances in the geographical spread of hospital resources was a significant impetus during the war years in the development of plans for post-war service (Titmuss, 1950; Willcocks, 1967), and the Constitution of the Medical Practices Committee represented an explicit response to the perceived need for a 'better' geographical spread of family

doctors. More recently, the search since 1970, described in the Introduction to this thesis for a 'fairer' formula to be used in the allocation of revenue resources from central government to regional and area authorities is continuing evidence of the salience of 'territorial justice' (Davies, 1968) in management policies. Policy statements have explicitly expressed the value. The 1973 Public Expenditure White Paper gave one objective in the future development of the health and personal social services as that of 'eradicating inequalities in the services available in different areas' (White Paper 1973); the South-East Thames Regional Health Authority, early in 1976, announced its long-term intention to 'equalise resources within the ..... region through the achievement of equal facilities for health care to meet the needs of the population throughout the region' (Health and Social Service Journal, 1976); and the DHSS, in relation specifically to primary care, has declared a medium-term objective of 'remedying persistent shortages of personnel in localities where they occur, by encouraging a better distribution of manpower' (DHSS, 1976). However, although the broad value of distributive justice is clearly reflected in these concerns about equality in the distribution of resources, the particular contents of the policies that are enacted reveal a diffusion of meaning attached to the idea of equity. The object of this chapter is to clarify possible ways in which the notion of equity in the spatial distribution of primary medical manpower has been, and could be, used. It addresses, in the context of primary medical care, the second of the two questions posed by Anderson's (1972) conclusions: what particular interpretation of distributive justice is embodied, either explicitly or by implication in the substance of distributional policies?

Two initial distinctions must be made between supply and distribution, and between a market-maximised and a market-minimised context of health care delivery. The distinction between supply and distribution reflects alternative premises about the bases on which distributional policies can

proceed. The first premise regards the total supply of manpower as a flexible quantity, responsive to contemporary judgements of need. An equitable distribution of manpower might thus be achieved first by determining the target manpower levels in each area according to some intrinsic notion of sufficiency, and then by aggregating the requirements for each area to produce a national target of manpower supply. The second premise, by contrast, regards the total supply and availability of manpower as controlled by factors largely unrelated to detailed estimates of need, and reflective only in very general terms of contemporary judgements of sufficiency. The problem of distribution is that of allocating the existing stock of manpower in an equitable fashion, in the knowledge that the resulting distribution is likely to fall short of an intrinsically desirable level of supply in many (if not most) areas. Post-war distributional policies in general practice have tended towards the latter premise. Although periodic attempts have been made to relate the output of medical schools to projections of the future need for medical manpower (Central Health Services Council, 1957; Royal Commission, 1968), the available stock of GPs at any point in time has never been regarded as the product of an explicit attempt to aggregate area needs. Accordingly, the Medical Practices Committee has defined its task as that of securing an equitable distribution of the number of practitioners available at each point in time, with no pretence that the level of supply in each practice area will achieve an intrinsic level of sufficiency. The notion of sufficiency cannot therefore be used to inform the definition of equity.

The distinction between a market-maximised and a market-minimised context of health care delivery likewise carries fundamental implications for the criteria that are invoked in assessing the equity of a distributional policy. Under perfect market conditions, where the supply of and demand for goods and services is reconciled by price, the issue resolves itself in economic terms. A commodity or service is in sufficient supply when

it satisfies demand at current prices. The market embodies homeostatic tendencies: if demand exceeds supply, the imbalance is normally redressed by an increase in price. In reality, no health care system operates under perfect market conditions. In the United States, which is classically cited as a market-maximised system, the perfection of the market is spoiled by the ability of suppliers (doctors) to influence demand (Navarro, 1974) and to control the level of fees (Rimlinger and Steele, 1963). Reinhardt (1975) argues that many of the conventional indicators of manpower shortage in the US may result from the capacity of doctors to control a large element of demand for their own services, through the initiation of follow-up and repeat consultations, in order to maintain a continuing workload in areas with doctor-patient ratios sufficiently large to cause redundancies if reliance was placed solely upon patient-initiated demand. It is possible, Reinhardt concludes, that the existence of a 'real' surplus of doctors (in the sense that supply would exceed demand under the perfect market condition of demand being independent of supply) may often be represented as a shortage of manpower resulting from an 'artificially' maintained excess of demand. Moreover, as chapter 1 noted, the apparent ability of many doctors in America to maintain an adequate standard of living in areas with very high concentrations of medical manpower has resulted in many communities being left entirely bereft of doctors - a phenomenon that would not be expected under perfect market conditions.

In spite of the actual imperfections of market systems for the delivery of health care, the remuneration of physicians largely on a fee-for-service basis implies the acceptability of a distribution of manpower that is roughly congruent with the distribution of available personal resources (from whatever sources) for expenditure on care. In a market-minimised service, by contrast, where goods and services are supplied at no more than a nominal price to the user and where doctors are remunerated wholly or partly on a salaried basis, the same criteria

cannot apply. In the absence of a price element the economic concept of sufficiency ceases to have much meaning because the demand for doctors' services (even when constrained by behavioural factors) is always likely to outstrip the supply of those services (Cooper 1975). A shortage will always exist, and the limited supply of services must be rationed among potential demanders by factors other than price. These might include, for example, delays in access to the service, lower standards of service, or even the non-availability of services to certain groups of people. Because of the absence of economic indicators of sufficiency, the criteria for evaluating the equity of the distribution of services are more subjective and problematic. What standards can be used in a national health service for defining an equitable spatial distribution of manpower?

At the lowest level of sophistication, an equitable distribution is that in which the total available resources are divided equally between all competing units. In the case of GPs, such a distribution would seek to ensure an equal number of doctors in each medical practice area. However, the inadequacy of such a standard of equity is obvious: equal resources for areas of unequal population size generate manifest inequities. At a higher level of sophistication, therefore, the distribution of resources between competing units is equitable when it is made in proportion to the total population living in, or using the resources of, each unit. The choice of population base may require justification, but as West (1976) points out, some form of population grouping is 'the most obvious and appealing measure of the equity of a particular distribution of resources'. According to this standard, a distribution is equitable when the ratio of resources to total population is equal between each geographical area (or, more realistically, does not exceed a pre-determined level of inequality). This is the standard implicit in the designated areas policy: practice areas are designated as short of doctors not as the result of intra-area evaluations of the relationship between need and supply, but almost entirely on the basis of comparison with doctor-patient ratios in other areas.

Although a standard of equity that relates resources to total population is easy to understand and feasible to measure and monitor, the adequacy of both the population and resource components of the standard is open to question. On the population side, the use of total population ignores the fact that 'needs' are not distributed evenly throughout the population. West (1976) offers an analogy from the field of education: an equitable distribution of the resources available for primary education is more appropriately related to the number of children of primary school age than to the total population of an area. A parallel assumption in the case of primary medical manpower (i.e. that resources should be distributed in relation to the need for them) requires a method of identifying the most 'needy' groups in the population for the purpose of weighting the calculation of the average list sizes used in the classification of medical practice areas. In practice, and unlike the analogy of primary education, no simple method exists. Attempts have been made to assess the equity of existing resource-distributions using conventional indicators of 'need' such as mortality and sickness absence rates (Hart, 1971; Jones and Bourne, 1976), but the technology of need-indicators remains at a fairly primitive level (Balinsky and Berger, 1975), particularly for small geographical units.

An alternative way of weighting the population component of the standard is through the use of demand as a substitute indicator of need. The formula used by the DHSS between 1970 and 1975 for allocating hospital revenue resources to the regional hospital boards adopted this pragmatic solution by adjusting the age-grouped population according to the rate at which each group was hospitalised during the previous year. Sufficient data exist at the national level of aggregation about the age and sex variations in GP consultation rates to permit a similar approach in calculating mean GP list sizes for the purpose of classifying the practice areas (OPCS, 1974), but the Medical Practices Committee has shown no

public interest in this method. Its theoretical weakness lies in the assumption that demand equates with need. There is doubtless a substantial area of overlap, but it seems to be widely accepted that demand responds as much to supply as to need (Kohn, et al, 1976), thereby perpetuating inequalities in resource - distribution based on formulae which substitute demand for need.

Just as the population side of an equity standard based on resources per total population can be criticised for its inadequacy, so too can the resource component. The essential argument against a resource-based standard is that it deals solely with the inputs to the primary care system, whilst the objectives of the system are more commonly expressed in terms of outputs or productivity. In the case of primary care, the doctor constitutes a resource that is valued not for himself in any intrinsic sense, but for what he does. The Royal College of General Practitioners, for example, defines a general practitioner as 'a doctor who provides personal, primary and continuing medical care to individuals and families' (RCGP, 1969). The substantive component of this definition is the statement of what the doctor actually does in the course of his work (i.e. his output or productivity); the doctor himself, as an individual possessing certain nationally attested minimum qualifications, is merely a resource that has no intrinsic value in this context apart from the output that he generates. It follows, therefore, that a measure of output per unit of population would be a stronger standard of equity than that of resource input per unit of population. An equitable solution in this sense would be one in which the distribution of resources is such as to ensure equality of service output between areas in relation to their weighted populations.

The feasibility of this solution in the development of policy is, however, limited. The output of general practice is heterogeneous, and there is likely to be little agreement about the priorities in output to

be achieved. In practice, therefore, inputs tend to be used as substitute indicators of output, with the implied assumption of a concomitant variation between the two (i.e. that output will vary in direct proportion to changes in input). For example, the BMA's advisory panel on health service financing commented, in relationship to its analysis, that 'no allowance is made for the fact that health inputs may vary disproportionately with ..... the health output, however the latter is measured' (BMA, 1970). Although such an assumption may legitimately be made under market conditions, where inputs and output will be equated at the margin by market forces, the relationship is less certain in a publicly financed service. In the case of general practice, three considerations may disrupt a linear relationship.

First, the output or productivity of general practice is generated not by the doctor alone, but by the doctor plus a range of other primary care workers, operating within a set of capital resources, and using a range of capital and consumption goods and equipment. Very little work appears to have been done on the production functions of general practice, but it seems reasonable on prima facie grounds to assume that the nature and volume of work performed by a given number of practitioners will vary from area to area, even with comparable populations, depending upon the availability and mix of non-doctor resources that are used in general practice. Second, the amount of time that GPs devote to their practices will determine the limits of their productivity. The variations noted in chapter 11 in the number of outside appointments held by general practitioners suggests that, in the absence of a standardised measure of whole-time equivalence, the total potential time available for productive work may vary even between areas with identical numbers of doctors. Cargill (1976) cites a community in which 10 GPs perform 19 hospital sessions per week, giving an effective availability to the community of 8 whole-time equivalent practitioners. The average list size is 2,095 per

doctor, but 2,619 per w.t.e. The difference in the productivity of doctors between this community and one of 10 doctors having no hospital sessions is likely to be considerable, all other things being equal. Third, the equalisation of non-doctor resources and the standardisation of time-availability will still fail to ensure an equal output from an equal input of manpower resources as long as the doctor retains his clinical autonomy. A given combination of human and non-human resources in general practice is capable of generating an infinite number of different output patterns. Doctors differ in their methods of diagnosis and treatment, in the relative emphasis they give to preventive and curative work, in the division of their time between surgery and home consultations, in the extent and nature of the work they delegate to other members of the primary care team, and in a host of other facets that affect their productivity. It is neither possible nor desirable to specify the detailed boundaries of acceptable patterns of output, although broad guidelines (for example those relating to prescribing behaviour) may be set for certain aspects of the doctor's work.

These dilemmas involved in attempting to achieve an equality of service output can be avoided by adopting an even stronger standard of equity: equality of service outcome. Just as resources are valued for the services they produce, not for what they are, so the services are valued ultimately for their beneficial effects upon the patient, not as ends in themselves. The ultimate purpose of a health service is articulated in terms of the health and well-being of individuals, and all other purposes (of teaching, research, administration, etc.) are subsidiary and instrumental to this over-arching objective. The strongest possible index of equity is therefore that of equality in the outcome or effects of care; but just as the relationship between resources and services is complex and uncertain, so too is the outcome of those services. Quite apart from the inherent uncertainties of clinical practice, three specific factors in general practice are likely to frustrate a linear relationship between output and outcome.

First, the quality of care delivered in general practice is likely to be variable between GPs, yet it must be assumed that quality is in some way related to outcome. The equalisation of productivity between areas is unlikely to lead to an equal outcome (all else being equal) if the quality of care varies substantially from area to area. It is difficult at the present time to carry the argument beyond this purely theoretical formulation. There is little evidence of consensus even about the conceptualisation of quality, much less about its measurement in concrete situations; yet the notion of equity as that distribution of resources which produces an equality of outcome, logically requires some statement of the acceptable range of quality to be incorporated into the standard. Second, account must be taken of the effectiveness of clinical procedures; that is, the extent to which 'particular medical action (alters) the natural history of a particular disease for the better' (Cochrane, 1972). Some procedures in general practice are of proven effectiveness; many others remain to be proven beyond the subjective level of clinical experience. The principle of clinical freedom ensures that doctors may pursue ineffective as well as effective courses of action, but the aggregate mixture of effective and ineffective procedures is likely to determine the combined outcome of care within an area. As with the argument about quality, it is impossible at present to pursue the relationship between effectiveness and outcome in this context beyond its simple theoretical statement.

The third factor in general practice that may disturb the linear relationship between service output and outcome is that of the 'quality of need' of the population. Even among a group of people with, say, the same diagnosis, there are likely to be qualitative variations between the needs of each person. The disease may differ in severity among members of the group; the social and environmental factors conducive to successful care may not be equally available to all; and the behavioural patterns in response to the illness may vary from person to person. All

of these variations may affect the outcome of a particular course of treatment, for outcome is a product of the interaction of a service and its recipient, not a function of service delivery alone. To the extent, therefore, that groups of recipients differ in their capacity and disposition to respond to a particular service, so the provision of an equal amount and quality of service output will generate differential outcomes. The implications of this conclusion for the development of policy are found in the corollary propostion, namely that the achievement of an equality of outcome may require an inequality of resource-distribution. This principle is recognised in the concept of positive discrimination in the allocation of educational resources, (Central Advisory Council for Education, 1967; Halsey, 1972). Children may have an equal 'need' to learn whatever skills are considered to be appropriate by society, but their capacity to learn may vary to such an extent between different groups of children that an equal exposure to the same teaching environment will not produce an equality of outcome (measured in terms of, for example, the child's success in acquiring a minimum level of skill within a specified time period). In order to compensate for the familial and environmental handicaps that some children bring to the learning situation, a relatively greater volume of resources is assumed to be required for their education. The educational priority areas (EPA) scheme is based on the premise that groups of educationally handicapped children can be identified on a geographical basis. The areas thus defined are designated as priority areas, and they receive relatively more resources than would be allocated under an equity standard based on equal resources for equal population size. This experimental policy for the designation of educational priority areas thus reflects a different, and more complex, understanding of distributive justice than the policy for the designation of medical practice areas, which operates within an equity standard that seeks an equal share of resources for an equal population size. The analysis above, however, suggests that the principle of positive discrimination may be as relevant to the allocation of health as of educational resources, although the experiences of the EPA scheme must

caution against any false optimism about the feasibility of identifying medical priority areas (Little and Mabey, 1972).

In summary, this chapter has attempted to delineate the range of possible interpretations that may be placed upon the notion of equity in arranging the spatial distribution of primary medical manpower. Starting from the broad public value that the distribution should aim to be 'fair', four levels of equity have been described: equity as an equal distribution of resources between all competing units; equity as an equal distribution of resources in relation to total population size; equity as that distribution of resources which produces an equality of service output; and equity as that distribution of resources which secures an equality of outcome for the recipients of services. These possible interpretations have, of necessity, been couched primarily in theoretical terms: their utility in the development of the designated areas policy involves a judgment about the acceptable trade-off between sophistication and feasibility. The standard of equity embodied in the existing structure of the designated areas policy is feasible, but sufficiently crude to arouse dissatisfaction. Equity as an equal distribution of resources in relation to total population size requires no conceptual ingenuity or administrative complexity, and it is readily understood by those who are affected by its operation. There is some evidence that the essential simplicity of the scheme has been an instrumental consideration in its perpetuation at times when arguments for change have been made. It is, however, seen as a fairly weak standard of equity when set against the range of theoretically possible standards described in this chapter. The criticisms that are periodically levelled against the designated areas allowance by the medical profession (see chapter 2) are criticisms of precisely this kind, although they are

articulated by their exponents in specific rather than abstract terms.

The evidence accumulated during the course of this study reveals a quite widespread desire among both doctors and administrators for a more acceptable notion of distributive justice, but the feasibility of using such a notion in the development of policy diminishes as that notion tends less towards resources and more towards output and outcome. It may be possible within the limits of existing capacity to proceed with some simple adjustment to the doctor and population components of mean list size for the purpose of classifying the medical practice areas. Data exist to enable the doctor component to be expressed as a whole-time equivalent, and the population component to be weighted for age and sex variations in consultation rates. Beyond this lie the uncharted territories of output and outcome, into which the research endeavour must venture sooner or later.

There remains the further difficulty, even when a distribution of resources can be described that satisfies an acceptable standard of equity, of actually achieving the desired objective. Is it possible to influence the locational decisions of independent contractors to an extent necessary to ensure a successful outcome? In addressing this question we return in the next chapter to the designated areas policy.

CHAPTER SIXTEEN

THE DESIGNATED AREAS: A REVIEW OF POLICY

The research reported in this thesis began in response to a request from the Department of Health and Social Security for information about the effect of the designated areas allowance upon the distribution of general practitioner principals. The thesis concludes in this chapter with a general review of current policies for the designated areas, highlighting some of the problems and ambiguities of the policies and discussing remedial action that could be or has recently been taken.

The concept of a designated area

Although the principle of dividing the country into geographical areas and offering additional financial allowances in areas with mean list sizes in excess of an arbitrarily chosen maximum seemed inoffensive (if not ineffective) in 1966, the scheme in fact presents a number of concealed ambiguities to those who attempt to justify the notion of maldistribution that the scheme seeks to redress, or who try to gauge the measure of its success. The most important ambiguity, described in chapter 4, concerns the distinction between the adequacy of the total supply of GPs and the imbalances in their spatial distribution. The evidence of distributional imbalance must logically be sought in a measure of the variability of mean list sizes between areas. The figures in table 5.1 constitute a simple measure of variability; more complex measures can be constructed from routinely available data. The proportion of practitioners in areas with mean lists in excess of a target figure that does not change in proportion to changes in the national mean list size, on the other hand, is only in part a measure of variability: it is more directly a measure of the relationship between the national mean list size and the target list size for practice areas. As the analyses in chapter 5 demonstrated, the proportion of principals (and patients) in designated areas increases as

the national list size moves closer to the basic criterion of designation (i.e. 2,500). This phenomenon will be observed even with quite small inter-area variations in doctor-patient ratios, although the proportion is likely to be larger as the variations increase. When the national list size reaches exactly 2,499, any variation between areas, however slight, will produce some designated areas (ignoring for the purposes of the argument the application of the overspill rule and the relevance of non-quantitative considerations). The same point can be made as a converse proposition: even with an identical average list in all practice areas, the entire country would be designated if the ratio of total population to all principals exceeded 2,500:1.

It is clear, then, that the proportion of practitioners in areas with mean list sizes above a specified figure is a weak indicator of the even-ness of distribution of GP principals; yet it continues to be used in spite of the evidence that has been presented to the DHSS, the Medical Practices Committee and the Review Body. One important consequence of this concerns the extent to which the maldistribution of GPs is believed to be improving or deteriorating. Even when it is clear that certain areas 'really do' suffer a relative deprivation of manpower, the method of identifying a movement towards a desired solution may contain ambiguities. The implicit objective of current policies is the attainment of more or less equal numbers of patients per doctor in each area, within a national average list size not exceeding 2,500. However, progress towards this objective may not advance each of these two components equally: in reality, one tends to be emphasised at the expense of the other (chapter 4), and it is therefore important that the relative value of each component is articulated. Is a trend towards the equalisation of list sizes between medical practice areas valued more or less highly than a decrease in the proportion of principals located in designated areas? The historical evidence (chapter 2) suggests that it is valued less highly: the introduction of and subsequent modifications to the

designated areas allowance have constituted responses to the fear of a worsening distribution of manpower, evidenced through increasing proportions of principals in designated areas. The fact that the ratios of mean list sizes in each practice area have tended towards the national mean at such times is ignored. Thus it is that the most active concern about the supposed worsening distribution of GPs generally coincides with periods of rising list sizes nationally; and, conversely, the belief of an improving distribution, evidenced through declining proportions of principals in designated areas, tends to coincide with periods of falling list sizes. There appears to be little recognition at any level of authority of the inappropriate nature of the conclusions drawn from the methods used.

A third ambiguity of the concept of the designated area concerned the interpretation of distributive justice which it embodies. The previous chapter described the nature of distributive justice or equity implicit in the existing policy, and contrasted this with other possible notions of equity. The chapter concluded that an equal distribution of resources in relation to total population size (i.e. the standard of equity embodied in the designated areas policy) is a fairly weak, but feasible, standard of equity. Its weakness is perceived by many doctors, and was expressed by them in the survey in various ways. For example, many doctors in non-designated areas pointed out that their workloads were as high and their patients as demanding as those of their colleagues in designated areas sometimes only a hundred yards down the road. The nature of the concept of designation makes this an entirely possible occurrence, yet it would doubtless offend these doctors' sense of fairness to remind them that what their areas lack, and what precludes them from receiving the designated areas allowance, is a high average list size within their medical practice areas. As with the ambiguities surrounding the interpretation of data on the distribution of principals between practice areas, the crude notion of fairness in the designated areas policy is well understood by the DHSS

and the Medical Practices Committee; but no known attempts have been made to improve it. To the author's knowledge, the MPC has not considered the possibility even of simple adjustments to the doctor and population components of mean list size, and the Department is not known to be sponsoring any current research that might indicate ways of incorporating output and outcome measures into the classification of medical practice areas.

The designated areas allowance

The research has produced no clear evidence of the instrumentality of the allowance in effecting a geographical redistribution of family doctors. It has been shown that the changes over time in the proportions of doctors in each class of practice area are more reflective of changes in the total supply of GPs than of their net redistribution, and that the small changes in distribution since 1952 are likely to reflect the negative control of the Medical Practices Committee rather than the positive attractions of the allowance. At best, the allowance appears to be neutral in its effect upon the locational decisions of doctors. This conclusion is supported by the subjective evidence of the doctors in the survey, most of whom rated a modest financial incentive much less highly than other professional and personal considerations in choosing a practice location, and by the experiences of other countries (Glaser, 1970). It is probable that the withdrawal of the allowance would have no deleterious effects on the distribution of GP principals.

The most pressing practical problem surrounding the designated areas allowance is that of an acceptable balance between its size and its disincentive effects. It is clear that the existing size of the allowance is too small to constitute a realistic inducement; it is equally clear that an allowance of, say, £20,000 would precipitate a rush of applicants to the chronically designated areas. However, the administrative regulations

governing the payment of the allowance (chapter 3) are such that it becomes an increasing disincentive with each increase in its value. Two major disincentives operate: the first is the qualifying period of designation which an area must undergo before it attracts the allowance, and the second is the cessation of the allowance after the elapse of a concessionary period following de-designation. In the first situation the possibility of waiting up to three years for the payment after moving to an area, and even in some cases of not receiving the allowance at all, are substantial and obvious reasons why doctors may not be prepared to move. As the proportion of designated areas eligible for the allowance increases so this disincentive may diminish in importance, but it has been a significant barrier so far, and still remains one. It could be eliminated simply by removing the qualifying period and paying the allowance immediately to all existing practitioners in designated areas and to those who enter an area while it remains designated. As soon as the area is de-designated the allowance would cease to be payable to incoming doctors, although in order to overcome the second type of disincentive (discussed below) some basis must be established for continuing payment to those in receipt of the allowance at the time of de-designation. If the area was subsequently redesignated the allowance would again be payable immediately, either to all doctors in the area or only to those moving into it whilst it remained designated.

The second disincentive in the existing scheme, arising from the cessation of the allowance after the elapse of a concessionary period following de-designation, is manifest in various ways. Doctors contemplating a move to a designated area may be deterred by the possibility of losing the allowance within three years of moving; those already in the area may be reluctant to admit newcomers when this would result in their loss of payment; and practitioners who suffer a loss of the allowance may have a substantially reduced desire to remain in the locality. It is obviously difficult to find any firm evidence that the disincentive really does work in this way

because it is not known what would happen if it were removed. Nevertheless, the replies of the respondents to the survey reported in this thesis, and the evidence accumulated in a subsequent study (Butler and Knight, 1974a) point consistently towards the counter-productive effects of an abrupt and unphased cessation of payment.

There are various ways in which this second type of disincentive could be minimised. One solution would be to extend the concessionary period of payment beyond the existing period of three years to six or even twelve years. Another solution, proposed by the Health Departments in 1969, would be to continue the payment on a personal basis for as long as the doctor remained in the same practice or area, regardless of any subsequent changes in the classification of the area (BMJ, 1969). A third possibility would be to increase the financial incentive the longer the doctor remained in a designated area, by offering doctors moving into designated areas a loan to be repayed at an agreed rate, with a progressive reduction in the amount payable for each completed year in the area. Sufficient evidence therefore exists for the Health Departments to take either the bold decision to withdraw the designated areas allowance completely (with appropriate 'no detriment' safeguards for practitioners currently in receipt of it) or the softer decision to amend the regulations in ways that will reduce the existing disincentives. There is, however, no evidence that either decision is being contemplated. The most recent report of the Review Body (1976) acknowledged the doubts cast by this research upon the efficacy of the allowance, but, apart from excluding the allowance from those for which increases were recommended, the Review Body gave no indication of imminent changes in its existence or administrative regulations.

The withdrawal of the designated areas allowance, as well as giving modest savings to current expenditure, would have the incidentally beneficial effect of increasing the Medical Practices Committee's flexibility in revising the boundaries and classifications of the medical practice areas. The areas were originally intended to provide broad indications of relative manpower needs between areas. Their boundaries were fixed more or less by local choice (chapter 3) and the basis of their classification was simple, but the method was sufficient to enable the MPC to identify general areas in which there were considered to be insufficient doctors, and to prevent the entry of new doctors into those places. The Committee also had the freedom to change area boundaries and to review the basis of classification as the need became apparent. However, with the introduction of the initial practice allowances and later the designated areas allowance, the definition and classification of practice areas assumed a major political importance; and although concerns were voiced about the error of basing the payments upon the medical practice areas (Working Party, 1964), the decision was nevertheless taken in 1966 to do just that. In short, the practice areas serve two distinct purposes: they provide the means for the Medical Practices Committee to exercise its statutory functions, and they regulate the distribution of an annually increasing sum of money amongst general practitioners. Consequently, changes in the definition or classification of areas that may be desirable for the first purpose are unlikely to be effected if they carry any negative financial implications for the doctors concerned. The abolition of the allowance would restore to the MPC much of the flexibility it enjoyed prior to 1966 in discharging its own obligations.

Other financial incentives

As well as (or instead of) a simple addition to the basic practice allowance for doctors in specified areas, other items of remuneration

might be loaded in order to maximise incentives. It has been suggested, for example, that each year spent in a designated area should count as one-and-a-half years towards superannuation, or as two years towards a seniority allowance. This latter suggestion is reasonably logical, since doctors in designated areas, having large lists, will presumably gain experience more rapidly than those elsewhere. Another way of distributing extra money would be through the establishment of differentials between designated and non-designated areas in the allowances available for the employment of ancillary staff. The principle is established in the reimbursement to GPs for the employment of assistants, and this particular differential (which at present amounts to £425 per annum) might be increased. The principle could be extended to other categories of staff, allowing designated doctors either to improve the staffing of their practices at no extra cost to themselves, or to continue with the same staff at a reduced personal cost. Similarly, a special locum allowance might be paid to enable the principal to take a holiday or study leave each year at no additional personal expense; or, more specifically, a sabbatical leave or research/study period might be allowed for each completed year in a designated area.

It is simple to think of different ways of distributing any extra money available for use as incentives. The ideas outlined above directly or indirectly add to the GP's income, either by enabling him to do more things for the same cost, or by increasing his income for the same workload. In principle, therefore, they do not differ substantially from the designated area allowance or loan scheme, and it is unlikely that their effect would be very different. If the value to the individual doctor is sufficiently high and if he is not deterred by any perceived disincentives, then it may matter little in which form the money actually reaches him. It is arguable that a form of endowment which directly enhances personal income (such as the designated area allowance or loan scheme) may be more

attractive than one which either represents a deferred accretion of income (by providing favoured entitlement to superannuation benefits or seniority payments) or which is conditional upon the performance of certain prescribed actions (such as the employment of ancillary staff or the taking of study leave). In practice the distinction may not be sufficiently sharp to the individual doctor to constitute a differential incentive: if he is going to be substantially better off as a result of working in a particular locality, and if the prospect is an effective inducement for him, then it is perhaps of secondary importance in just what form the extra money is paid.

The suggestions discussed above accept the principle and morality of cash incentives, but they raise the question of whether incentives should in fact be used to increase the personal wealth of GPs. An alternative policy would be to channel available resources towards the improvement of practice premises, equipment and staffing. Doctors would not be any better off personally, but they would enjoy larger practice subsidies, and would generally be able to provide a better service to their patients. The argument is not new. The Gillie Report in 1963 suggested the provision of premises in designated areas and of opportunities for hospital practice, public health work and medical administration (Central Health Services Council, 1963). The 1964 Working Party discussed the possibility of attachment schemes for health visitors and district nurses in under-doctored places, the provision of purpose-built practice premises, and the provision of adequate living accommodation for married junior hospital doctors in the hope of encouraging them to settle and to seek openings in general practice in such places (Working Party, 1964). More recently Townsend (1969) has suggested the introduction of a practice equipment allowance for the purchase of such expensive equipment as an ECG machine and vitalograph. He also makes the suggestion that doctors who have spent a number of years in a designated area should be given preferential consideration when applying for more attractive posts. (In fact the MPC did urge executive councils

as long ago as 1951 to give full consideration to doctors who, having spent much of their lives in substantial practices in heavy industrial areas, were seeking more modest vacancies in pleasanter areas towards the end of their careers (Medical Practices Committee, 1951). Recent decisions by the Committee confirm that more than lip service is paid to the request, but unless some kind of points system is introduced it is difficult to see how it can be fairly applied.)

The assumption which usually underlies such proposals is that designated areas are not only short of doctors, but also have poorer premises, equipment, facilities and practice conditions than places with better doctor/patient ratios. Since this is the case (the argument runs) it is logical that additional resources should be employed to compensate for these professional disadvantages. Some designated areas are doubtless comprehensively deprived in this way, but the results of the survey indicate that as a general proposition the assumption is dubious. The replies from the survey about practice conditions failed to differentiate consistently between doctors in designated and non-designated areas; in some respects the designated doctors were less favoured than their colleagues elsewhere, in others they were more favoured. Such findings invalidate the belief of widespread deprivation in the designated areas, but they do not necessarily cast doubt upon the potential effectiveness of non-financial inducements in levelling up the distribution of manpower. Doctors entering general practice will probably be increasingly attracted by the prospect of good practice facilities, and if the designated areas are that much better than the rest, so well and good. But it is desirable to maintain a balanced view of health care objectives, and the deliberate improvement of facilities in areas characterised by high average list sizes is not necessarily a sensible policy in itself. Not only would it widen still further many of the important gaps between designated and restricted areas (possibly leaving the latter as the new relatively deprived areas of the

country), but it may also result in resources being used in areas which do not stand in the greatest need of them. It may be wiser as a long-term strategy to try to identify areas of medical deprivation as the units for special attention than to continue with the assumptions and objectives underlying the existing designated areas scheme.

Non-financial strategies

In addition to the various measures which may directly affect the distribution of family doctors, the results of the survey have highlighted further factors contributing to patterns of residential location which, if controlled, might afford less direct means of influence. But there is a dilemma, for some of the most powerful factors influencing the choice of residential location are those least amenable to deliberate manipulation, especially those associated with the connections which doctors have with particular areas (chapter 9). Financial incentives may achieve some success among younger doctors if the correct balance can be found between effective levels and disincentive values; improved practice facilities may likewise attract younger men entering practice; but the location of a future doctor's birthplace, his home area, and his wife's family home are almost entirely beyond control.

There are, however, some possible pointers to policy choices in this matter.

The development of centres of under-graduate and post-graduate training in areas of chronic manpower shortage may be one way of harnessing the natural influence of existing contacts with an area on a doctor's choice of practice location. It is, obviously, impossible to control the areas of birth and upbringing of future GPs, and in any case it is impossible to predict on an individual basis which of today's schoolchildren

will be tomorrow's doctors. What may be open to manipulation, however, is the structure of opportunities they have to develop their capacities, and the encouragement they are given to choose medicine as a career. More energy might, for example, be expended on stimulating interest in a medical career among qualified sixth-formers in designated areas. Although there is no clear evidence of a relationship between the presence of a local medical school and the proportion of university candidates in the area who choose to study medicine, a local centre could undoubtedly contribute greatly to the effectiveness of 'recruitment' campaigns. Much of the initiative in meeting sixth-formers and in arranging a medical equivalent of the industrial short works' courses might come from the local medical community, supplemented where required by special campaigns mounted by central government and by local Youth Employment Officers.

Once the commitment to study medicine has been made by a school-leaver in a designated area, the offer of a place at a local medical school would reinforce the student's probability of remaining in his home area. The evidence for this was discussed at length in chapter 9. It is the cumulative influence of community ties which led us in that chapter to reject the principle of the Royal Commission's (1968) argument about the irrelevance of settlement patterns to the siting of new medical schools and the expansion of existing ones, and although a great deal of detailed information would need to underlie any decision about the location of a new school, the results presented here are clearly relevant to the decision about establishing a medical school at Hull (Doctor, 1976). On completing their basic training, prospective GPs might be exposed to propaganda about the geographical imbalance of doctors, and the social value might be stressed of young doctors spending the early part of their careers in the traditionally ill-staffed areas. The effectiveness of such exposure would naturally increase if the school itself were situated in such a locality. It would perhaps be over-stating the case to create the notion of 'VSO at home',

but the idea of deliberately devoting a part of one's career to the cause of territorial justice in medical care might, if properly stimulated, appeal to the current egalitarian ethos of young professional people. Similar schemes are commonly run in developing countries, often with much success. They run the risk of encouraging a shifting and discontinuous service in the recipient areas, but in the context of the designated areas there may be compensating permanent gains of doctors who perhaps originally intended to practise for a short period only.

However attractive these and other similar strategies might appear on paper, they must be evaluated in the context of the cautionary remarks in chapter 1 (pages 46-49). They have not yet been adopted by government as explicit components of a redistributive policy. The most important non-financial strategy continues to be the negative direction exercised by the Medical Practices Committee over the location of principals. The evidence suggests that this has been the most significant element in the redistribution that has occurred since 1952. The regular increase in the ratio of average list sizes in restricted areas to the national average, from an index of 65 in 1952 to 82 in 1974 (table 5.1), has probably been due entirely to the control of the Committee over the admission of principals to these areas; and if this trend continues with no corresponding increase in the index for the designated areas, further redistribution will occur in the future. This represents a substantial achievement at minimal cost which more expensive strategies may not be able to improve.

Medical practice areas

The evidence in chapter 4 and elsewhere (Butler and Knight, 1974a) points towards the unsuitability of many practice areas for their functions. The smaller practice areas (most of which are classified as intermediate or restricted) are best suited to their original purpose of negative control,

which operates not only to encourage the deflection of manpower away from restricted areas into those with larger mean list sizes, but also to prevent unfair competition to doctors in places where the population is widely scattered and the financial rewards relatively low for the amount of work done. Larger practice areas, on the other hand, which tend to be designated or open, are much less suited to their purpose. Two particular problems have emerged. First, many of these areas, especially the former county boroughs, are too large and too heterogeneous to identify wide variations in doctor-patient ratios within them. This conclusion emerged from the statistical evidence (table 4.6), and was confirmed by the practical experiences of executive council clerks and local medical committee secretaries (Butler and Knight, 1974a). Second, many larger areas no longer bear any close relationship to the catchment areas of their practitioners. Although the principle of free choice for both doctors and patients precludes any precise coincidence of medical practice areas and doctors' catchment areas, nevertheless population movements and new housing developments have rendered many old boundaries unacceptably obsolete. This applies particularly to the former county boroughs and the fringe areas of new housing estates around them. In addition to these particular problems in designated areas, the reorganisation of the NHS may create new difficulties and anomalies in all areas unless the boundaries of the practice areas are rationalised with those of other geographical units in health services administration. About two-fifths of the former executive councils contained practice areas which overlap the new FPC (AHA) boundaries, and an unknown (but probably high) proportion of practice areas overlap the new health districts. Unless a high degree of coterminosity is introduced, there is a danger of two parallel but separate planning systems emerging, one for general practitioner manpower and one for other health services.

There is evidence of action being taken on these matters. The request by the Medical Practices Committee for working parties to be established

locally for the purpose of rationalising practice areas within FPC areas (page 7) reflects a recognition of the need to respond to reorganisation and an appreciation of the opportunities which rationalisation could offer. The Review Body, in its most recent (1976) report, noted that 'the medical practice areas have been re-drawn and now meet the criteria proposed by the Kent University study group more closely'. Informal evidence from FPC administrators indicates that more progress has so far been made in aligning the practice area and health district boundaries than in reducing the size of the larger areas; this would be expected in view of the likely resistance, noted above, to any fragmentation of areas which might result in a diminished eligibility for the designated areas allowance.

Co-ordination in policy

An important source of difficulty in the development of a coherent policy for the spatial distribution of primary medical manpower is the division of responsibility in policy formulation. A rational policy for the selective use of financial incentives in areas considered to be under-doctored would seem to require the integration of four elements: the form which the incentives should take, the financial value to be placed upon them, the geographical units within which they are to be applied, and the conditions under which they become operative. In reality, as has been demonstrated, the responsibility for each element is diffused between different authorities. The first element, that of the form which the incentives should take, is negotiated between the British Medical Association, the General Medical Services Committee and the DHSS, and may be based upon differing (and sometimes conflicting) views about national manpower trends and needs. The second element, that of the financial value of the incentives, is determined by the Review Body after receiving submissions from, amongst others, the BMA and the Health Departments. The Review Body stresses its independence of both the BMA and the DHSS, but its recommendations

may be modified or even rejected by the government, as in 1966 and 1970. The third element, that of the geographical units within which the incentives should operate, is determined ultimately by the Medical Practices Committee in close consultation with the family practitioner and local medical committees. Like the Review Body, the MPC is wholly independent in its executive responsibilities, even to the point of having minimal contact or exchange of information with the Review Body. The fourth element, that of the conditions under which the incentives become operative, is difficult to allocate. For all its weaknesses, a list size of 2,500 has always been accepted as the maximum number of patients for whom a GP can reasonably provide acceptable care, yet it is far from clear why this figure was originally chosen or whether it remains appropriate in the light of the scientific, technical and organizational changes in the past twenty years. Its enshrinement in the folklore of general practice is now a source of frustration to the MPC, which, even if it wished to review the criterion of designation, is contrained from doing so by virtue of the financial interests at stake.

One important implication of this fragmentation of responsibility in the development of an integrated policy concerns the difficulties of collecting and disseminating relevant data about manpower needs and uses. Each group involved in the process requires information, but no central information system ensures that comparable data are uniformly available to them. The way in which information is assembled, and the kind of information which each group considers to be relevant, lacks consistency. Moreover, it is probable that communications between each group are insufficiently formal to ensure that information passed to, for example, the Review Body through its secretariat in the Office of Manpower Economics, is also made available to the MPC. The reorganisation of the NHS in 1974 did nothing to change the situation, for the Review Body and the Medical Practices Committee were unaffected by the Act, the responsibilities of the executive councils in negotiating with the MPC were assumed by the

new family practitioner committees, the local medical committees revised their constituencies but not their functions, and the BMA and the DHSS lay entirely beyond the scope of the Act, being concerned as it was exclusively with the NHS.

The co-ordination of the dissemination of information, even if it could be achieved, would be of little value unless the information was relevant and appropriate. The imperfections of much of the currently available data have been mentioned at various points in this thesis. The most serious imperfection arises from the failure to identify changes over time within the same areas and to plot the flows of doctors between areas. By taking annual aggregates of each class of area it is difficult to assess the real significance of changes in, say, the number of doctors practising in designated areas and it is quite impossible to identify the gross and net movements from one type of area to another. The linking of information for the same area over a number of years may be a complex operation, but it should be feasible to trace year-to-year changes. One way of doing this would be through the Doctor Index by tabulating, for each doctor, the classification of his practice areas in the previous year against that of the current year. The Index, which is compiled and held by the Statistics Division of the Department of Health and Social Security, contains certain details, including residential location, of all principals and assistants engaged in National Health Service practice. The information is stored in written documents and on punch cards, and new documents and cards are raised for doctors who are admitted to the Medical List for the first time and for those who change executive councils. The mechanism of updating the Index would therefore be ideally suited to a continuous monitoring of mobility patterns, but the actual method of recording and storing information is not suitable in its present form. The Index was substantially revised in 1962, and the nature of the changes makes it impossible to undertake retrospective analyses of previous movements.

At present only part of the requisite information is stored in punched form, and the fact that it may be divided between a number of different cards, none of which can be conveniently linked with any other, means that the Index in its present form would not be suitable for monitoring future movements. However, certain modifications in the methods of recording information could enable the Index to be used for this purpose, and the possible computerisation of records in the future would greatly enhance the sophistication of the resulting analyses. There are, obviously administrative and political barriers to be surmounted before the Index could be used in this way, but these ought not to be invoked as reasons preventing further consideration of its potential value.

Conclusion

This chapter has attempted to delineate the major problems arising since 1966 from the experiences of the designated areas policy. The research has probably assembled sufficient evidence to justify, on rational grounds, a fundamental review of the objectives of distributional policies and the methods of their achievement, but this is essentially an academic conclusion that is likely to receive little sympathy from hard-pressed managers and administrators, operating on a basis of pragmatic incrementalism, who must take decisions with limited time and other resources. In this sense, the project has been an instructive experience in the problems of collaboration between academic research and government bureaucracy. To date, the project has made no more than a modest impact upon policy in spite of the efforts made to maintain a constructive liaison with the DHSS, the BMA and the MPC, and notwithstanding the favourable response which the research has elicited from these and other quarters. The themes with which the research has been concerned are likely to be of continuing salience at least in the immediate future, and the full impact of the study may remain to be felt; but the experiences of the researcher thus far offer a salutory

warning to those who would wish to believe that 'more research' is the answer to all our social problems.

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APPENDIX A

THE EXTENT OF COLLABORATION

Many people have contributed in various ways to the research reported in this thesis, and this appendix sets out the relative contributions of the candidate and of other research workers.

The actual writing of the thesis is the sole work of the candidate, although all chapters reflect the critical comments and suggestions of colleagues. The introduction and chapters 1 and 15 are the sole and original work of the candidate, having formed no part of the collaborative research or of any previous reports from that research. The remaining chapters, with the exception of chapter 4, are based upon the report of the original study carried out in 1969-71. Chapters3, 5 and 16 have been extensively revised for this thesis, with new data added and important new perspectives taken and interpretations made. These three chapters amount almost to a new script. The remaining chapters in this block (that is, chapters 2 and 6-14 inclusive) follow very closely the report of the original study, on which the candidate was one of three collaborators. The other two collaborators were Mr. J.M. Bevan, then Senior Lecturer in Quantitative Social Science at the University of Kent at Canterbury, and Dr. R.C. Taylor, then Lecturer in Sociology at the same University. Mr. Bevan has contributed the following note.

> 'Mr. Butler joined the research project formally on 1st April 1969, by which time the preliminary work for the survey of general practitioners, which constituted the major field exercise of the study, had been developed to the extent that the annotated sample list was available and the preparation of the questionnaire used in the survey of doctors was well advanced. We had already, however, benefited from Mr. Butler's help in the form of detailed criticism and

suggestions on the questionnaire during the period following the acceptance of the appointment in January 1969. Thereafter, as is well known, Mr. Butler played a major role in bringing the project to what is generally accepted as a very successful conclusion.

'It is always difficult to disentangle the responsibility for ideas in a project involving more than one worker, but in the final report submitted to the DHSS, two very important sections stand out especially as Mr. Butler's distinctive contribution. The first section (on which chapters 2, 3 and 5 of this thesis are based) covers his study of published and unpublished data on the distribution of doctors. In these chapters he traced the history of the designated areas, discussed the matter of controls and incentives in relation to the distribution of principals, drawing attention to concepts of depth and extent of deprivation of doctors. He also discussed the distribution of principals, developing methods of measuring inequalities in their distribution. In the second section to which I refer (on which chapters 7, 8 and 9 of this thesis are based), Mr. Butler analysed data from the survey of general practitioners in a way quite distinctively his own to present a picture of the mobility of general practitioners and an analysis by area of "flows" of doctors to and from these areas. He also discussed in detail the influence of community ties on the movement of doctors. Any criticisms and suggestions Dr. Taylor and I gave on these sections were, I think, no more than any Ph.D. supervisor would have offered.

'If these sections Mr. Butler can regard as very much his own, it is also true that he bore very much the major burden of the analysis and writing-up in the remainder of the report (on which chapters 10-14 of this thesis are based). The reason why I would

distinguish between these two sections above and the remainder of the report lies in the fact that certain analyses followed more or less inevitably from the agreed objectives of the study, content of questionnaires used, and joint discussions on planning and analysis, making it difficult to separate out responsibility for ideas.

'Mr. Butler's work on the study as a whole testifies to his competence in the organisation, analysis and writing-up of research, and the sections mentioned above, which are most distinctively his, constitute evidence of originality and excellence in research which the examiners would wish to find in a candidate for the degree of Ph.D.'

In addition to the contributions of the candidate's academic collaborators, assistance was received from various sources in the physical aspects of the analysis of the survey data. Although the preparation of the coding frame and the recruitment and training of the coders were the candidate's responsibility, the actual coding was performed by outside workers under the supervision of Mrs. G.M. Butler; the cards were punched and verified by Mrs. S. Gates; and the computer programming was carried out by Miss J. Dobby. Some of the material in chapter 14 is drawn from a content analysis of the open-ended responses performed by the London Survey Research Centre under the direction of Mrs. J.C. Rowat.

Chapter 4 is the only chapter in the thesis which draws to any substantial extent upon the results of the study of medical practice areas (see introduction, page4). This study was initiated and designed by the candidate, but much of the abstraction and analysis of the data was carried out by Mrs. R. Knight, who was employed as a Research Fellow on the study. Much of the quantitative material in this chapter is the direct result of Mrs. Knight's work, under the supervision of the candidate. It is included in the thesis because of its central relevance to the arguments developed

in the first section of the thesis. Mrs. Knight was also responsible for assembling the data used in tables 3.1 and 5.4, and her general contribution to the study over a period of 18 months has shaped some of the ideas in chapters 3 and 16.

Mr. Bevan, Dr. Taylor and Mrs. Knight have read this appendix and agree that it represents a fair statement of the relative contributions of themselves and the candidate to the contents of the thesis.

APPENDIX B

SURVEY MATERIALS

Covering letter sent with the initial mailing in the main survey

Address of local
Divisional Medical Office

Dear Dr. _____,

I am writing to ask for your help with a survey that is being carried out by the University of Kent into certain aspects of General Practice. The survey is supported by the Department of Health and Social Security, and a number of general practitioners have participated in the planning of it. In addition the General Medical Services Committee has examined the questionnaire and has given its approval to the study. I, myself, believe that this is a valuable and worthwhile piece of research, and I hope that you will agree to help by completing the enclosed questionnaire.

The study is particularly concerned with regional variations in the provision of general medical services. You know, of course that average list sizes vary quite considerably between different areas, and that the addition to the basic practice allowance for doctors practising in designated areas was intended to some extent to narrow these variations. It is hoped that the survey will show a broad profile of general practice in different regions of the country, of the movement of doctors between areas, and of factors that influence the choice of where to practise.

To do this, about 2,000 general practitioners are being sent the questionnaires, and your name has - by about a 1 in 10 chance - fallen into the sample. The University has asked me to stress how important it is that a 100% response rate should be achieved, for otherwise the results will not represent a true cross-section of the profession. Your replies are important even though you may have no intentions at all of moving or changing practices.

All the information collected in the survey will, of course, be treated in the strictest confidence, and nothing will be included in any report or publication that could possible lead to the identification of any individual doctor. The data will be processed centrally at the University of Kent, and it would therefore be convenient if you will kindly return your completed questionnaire directly to them, using the enclosed envelope. I will, however, be pleased to elaborate upon any aspect of the study.

The problem underlying this research is of fundamental importance to the future of general practice, and it is one that has greatly concerned the B.M.A. and the Health Departments in recent years. This project is the first national investigation into the problem, and I hope that you will share our belief in the value of it.

Thank you very much,

Yours sincerely,

Regional Medical Officer

Covering letter sent with the second mailing in the main survey

University of Kent at Canterbury
Centre for Research in the Social
Sciences

Dear Dr. _____,

I am writing to you about the General Practice survey which this University is carrying out in conjunction with the Divisional Medical Officers. About two weeks ago you received a letter from the Regional Medical Officer asking if you would kindly co-operate in the survey; by completing the questionnaire that was enclosed and returning it to me. The response so far has been extremely good, but I note from our records that we have not yet received your reply.

It is most important that we hear from all the doctors in the sample, as otherwise the results will not represent a true cross-section of the profession. Even if you have no intention of moving in the next few years your reply is extremely valuable, and I hope you will feel able to help us by returning the completed questionnaire.

I might perhaps add that the strictest standards of confidentiality are being observed in this survey, and of course nothing will be published which could lead to the identity of any doctor.

I hope to receive your questionnaire at your convenience. Thank you very much for your help.

Yours sincerely,

J.R. Butler

Covering letter sent with the third mailing in the main survey

University of Kent at Canterbury
Centre for Research in the Social
Sciences

Dear Dr. _____,

A study in General Practice

I am so sorry to trouble you further at an exceptionally busy time of the year, but I note that I have not yet received your completed questionnaire and I am most anxious to reach as high a response rate as possible. At the moment four out of every five doctors approached have returned their questionnaires, but several have written to us in the last few days to say that they have mislaid the questionnaires in the rush of coping with the influenza outbreak. In case you have also mislaid the original mailing and would still like to participate I am enclosing another questionnaire and reply envelope for your use.

I very much regret that the timing of the total project forced us to carry out the survey during winter months when work loads are particularly high, and of course the unexpected outbreak of influenza in the middle of the survey has further added to the difficulties. I am therefore especially grateful to the many doctors throughout the country who have found time to complete and return their questionnaires, nad I hope that you will now feel able to help us.

I might perhaps add that since I first wrote to you I have been in touch with the Department of Health and Social Security about disseminating the principal research results, and we are now planning to send a summary of the results to all participating doctors on completion of the project.

I hope to receive your questionnaire shortly, and thank you very much for your help.

Yours sincerely,

J.R. Butler

The questionnaire

1. Which Medical School(s) did you attend?

2. What primary qualifications do you have? (Please tick)

M.B., Ch.B. or equivalent ☐

Conjoint or equivalent ☐

M.B., Ch.B. and Conjoint or equivalents ☐

Other ☐

3. What other qualifications do you have? Please include all higher degrees, diplomas, memberships, etc., and state the year in which they were obtained.

Qualification	Year

4. Please complete the following table for all positions you have ever held in general practice, except as a locum. Include your present position as the latest one, and specify the number of years you have spent in it so far. A change of position means a change of practices, and does not include promotions within a practice. If any position has been split between two or more locations, please state the location in which the majority of your time was spent.

Position	Year of starting	Location (town and county)	Duration (number of years)
1			
2			
3			
4			
5			
6			

5. Since full registration, how many years have you spent altogether in full-time paid positions in:

hospital work?	_____ years	_____ months
military service?	_____ years	_____ months
other medical appointments apart from general practice?	_____ years	_____ months

6. What other medical appointments do you currently hold outside the provision of general medical services?

Appointment	Type of appointment
1	
2	
3	
4	

7. Do you receive a group practice allowance? (please tick)

No ☐

Yes ☐

8. What ancillary help, either full-time or part-time, do you have in or attached to the practice? (Please tick all that apply)

No ancillary help ☐

Secretary/receptionist ☐

District nurse ☐

Health visitor ☐

Other S.R.N./S.E.N. ☐

Social Worker ☐

Other ancillary help ☐

9. Do you feel that the ancillary help provided in your practice is:

(please tick)

- most adequate ☐
- adequate ☐
- inadequate ☐
- most inadequate ☐

10. Are your main or branch consulting rooms in a Local Authority Clinic or a Health Centre?

(please tick)

	No	Yes
Main consulting rooms	☐	☐
Branch consulting rooms	☐	☐

11. How many nights of the week are you on call, on the average, for cases other than obstetrics?

(please tick)

- Every night ☐
- 5 or 6 nights ☐
- 3 or 4 nights ☐
- 2 or fewer nights ☐

12. Do you have direct access to any N.H.S. beds where you retain full responsibility for the treatment of your patients whilst in hospital?

(please tick all that apply)

- No beds at all ☐
- Obstetric ☐
- Medical ☐
- Surgical ☐
- Geriatric ☐
- Other ☐

13. Do you feel that the direct access which you have to N.H.S. beds is:

(please tick)

- most adequate ☐
- adequate ☐
- inadequate ☐
- most inadequate ☐

14. To which of the following facilities do you have direct access (i.e. not through a consultant or casualty)?

(please tick all that apply)

- Full size chest X-rays ☐
- Bone and joint X-rays ☐
- Bacteriological examination of urine ☐
- Glucose tolerance tests ☐
- None of these ☐

15. Do you feel that the direct access which you have to diagnostic facilities is:

(please tick)

- most adequate ☐
- adequate ☐
- inadequate ☐
- most inadequate ☐

16. In general, how would you describe:

	Very good	Good	Poor	Very poor
Arrangements for getting your elderly patients into hospital?	☐	☐	☐	☐
Communications from hospital when patients have been discharged?	☐	☐	☐	☐
Your opportunities for taking post-graduate or refresher courses?	☐	☐	☐	☐

	Frequent	Occasional	Rare	Non-existent
Your contacts with teaching hospitals?	☐	☐	☐	☐
Your contacts with post-graduate medical centres ?	☐	☐	☐	☐

17. Do you use the following equipment in your consulting room?

(please tick all that apply)

- Height scale ☐
- E.S.R. tubes ☐
- Microscope ☐
- H.B. meter ☐
- Sterile gloves ☐
- Proctoscope ☐
- E.C.G. machine ☐
- Wright peak flow meter ☐
- Equipped emergency bag ☐

18. How far do you live from your main consulting room?

(please tick)

Main consulting room as part of residence	☐
Less than 2 miles	☐
2-5 miles	☐
6-10 miles	☐
More than 10 miles	☐

19. What influenced your choice of this area as the one in which to practise?

20. In general, how satisfactory is this area for the needs of you and your family in the following ways?

(please tick)

	Very satisfactory	Satisfactory	Poor	Very poor
Educational provisions	☐	☐	☐	☐
Cultural amenities	☐	☐	☐	☐
Shopping facilities	☐	☐	☐	☐
Recreational facilities	☐	☐	☐	☐
Availability of suitable housing	☐	☐	☐	☐

21. Are you thinking of moving in order to practise in another part of the country (or abroad) in the next two years?

(please tick)

No	☐
Yes	☐

22. What considerations would be important to you in choosing an area in which to practise if you were to move?

23. Do you have any comments on the principle or value of paying an additional allowance of £400 per annum to doctors practising in areas that have been continuously designated for at least three years?

24. Where were you born? (please state town and county)

25. What is your marital status? (please tick)

Never married	☐	Now go to question 27
Married	☐	
Widowed	☐	Now go to question 26
Divorced	☐	

26. (a) In what year did you get married?

(b) Please list the ages of your children, if any.

(c) Where was your wife's/husband's home for most of the time before her/his marriage? (please state town and county)

27. Where was your home for most of the time before you went to University? (please state town and county)

28. What type of secondary school did you go to? (please tick)

Grammar	☐
Public	☐
Other (specify)	☐

29. What was your father's occupation at the time you were born?

Thank you very much for your help. Please return this questionnaire to Mr. J.R. Butler, Centre for Research in the Social Sciences, University of Kent, Canterbury, Kent.

APPENDIX C

PUBLICATIONS RESULTING FROM THE RESEARCH

J.R. Butler. (1971). 'The distribution of general practitioners: some implications for health policy', paper presented at the fifteenth annual meeting of the Society for Social Medicine, Dublin

J.R. Butler, in collaboration with J.M. Bevan and R.C. Taylor. (1973). Family doctors and public policy, London: Routledge and Kegan Paul

J.R. Butler and R. Knight. (1974). 'General practice manpower and health service reorganisation', Journal of Social Policy, 3, 3, 235-251

J.R. Butler and R. Knight. (1975). 'Designated areas: a review of problems and policies', British Medical Journal, 2, 571-573

J.R. Butler and R. Knight. (1975). 'The choice of practice location', Journal of the Royal College of General Practitioners, 25, 496-504

J.R. Butler. (1976). 'How many doctors are needed in general practice?', British Medical Journal, 1, 134-135

J.R. Butler and R. Knight. (1976). 'Medical practice areas in England: some facts and figures', Health Trends, 8, 1, 8-12

J.R. Butler. (1976). 'Well, I wouldn't like to practise in Wigan ..... ', Kent Local Medical Committee News, 6, 10-12