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Knapp, Martin Richard John (1980) *Production relations for old people's homes.* **Doctor of Philosophy (PhD) thesis, University of Kent.**

PRODUCTION RELATIONS FOR OLD PEOPLE'S HOMES

Ph.D. Thesis

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December 1980

CONTENTS

PREFACE

I arrived at the University of Kent at Canterbury on the first day of August 1975 as a dyed-in-the-wool econometrician. I had been appointed to a Research Fellowship in the Personal Social Services Research Unit and joined the Director, Bleddyn Davies, and the other new Fellow, Andrew Bebbington, in a team of three. Opening my office door on that sunny morning I recoiled with horror at the sight of three huge piles of books and papers, together with a welcoming note from Bleddyn. I did not keep that note but really should have done, for it provided as good an introduction as one can get to Bleddyn's inimitable research style. The gist of the message was that Bleddyn was away at a conference and wanted me to read the accompanying literature before he returned one week hence. My horror was compounded when I discovered there wasn't a single regression analysis in the whole lot!

For months I waded through the higher (or lower) reaches of social gerontology, developmental psychology and social work, never once touching a computer keyboard. I can well remember one melancholy evening in a local hostelry which followed a long afternoon's struggle (which I lost) with an article on "the meaning of life". I seriously wondered if there had been some awful mistake in the appointments procedure which left me the bemused incumbent of the wrong post. How many other postgraduate econometricians, I mused, had spent the afternoon battling with the meaning of life?

The research reported in this thesis dates from those long days, and five years later I can see that my labours were, after all, appropriately directed. I cannot express my gratitude sufficiently to Professor Davies for his continued encouragement, stimulation and advice. His research leadership not only comprised enthusiastic guidance but also included a very careful reading of numerous drafts of most chapters of this thesis. I have not always heeded his advice, and the thesis is probably the worse for it, but on the whole, Bleddyn's constructive comments have proved most helpful. We collaborated to write Old People's Homes and the Production of Welfare (Routledge and Kegan Paul) and parts of chapters

1, 3, 4 and 5 of this thesis develop arguments described in the book. It is impossible to say who was mainly responsible for which parts of the book, but the arguments have been substantially developed (though not necessarily improved) since the manuscript was delivered to the publishers in September 1979. In particular, the gathering of historical material has been undertaken since that date.

Other parts of this thesis have been published or are awaiting publication. The results presented in the appendix to chapter 4 draw on an article published in Socio-Economic Planning Sciences (1977) and benefited from the comments of Richard Belding and David Hutton. Some of the results reported in section 7.4.2 were previously published, in expanded form, in the Journal of Social Policy (1978). That article was jointly written with Bleddyn Davies, and the data were kindly made available by John Townsend of Cheshire County Council Social Services Department. The results of section 7.4.3 have previously been published in the International Journal of Social Economics and were based on information provided by Kent County Council Social Services Department. The material of chapter 8 has not been published but was presented to a seminar in Canterbury during the early part of 1978. A number of useful comments were made, and I am particularly grateful to Bleddyn Davies and Tony Thirlwall for their contributions. Chapter 9 is an expanded version of an article published in Social Policy and Administration (1979). The analyses of staff turnover and vacancies in chapter 10 were completed with the help of computer assistance, under my direction, from Kostas Harissis and Spyros Missiakoulis. The analyses of section 10.4.1 are reported in a forthcoming paper in the Gerontologist, jointly written with Kostas Harissis. Finally, my comments on Gavin Mooney's research in section 11.3.4 are published in the Scottish Journal of Political Economy (1980) and have benefited from his own comments on an earlier draft of my paper.

As well as those friends and colleagues mentioned above, I would also like to mention a number of others whose encouragement, advice and support have proved most important "quasi-inputs" into the "production of thesis" process. My colleagues in the Personal Social Services Research Unit created the intellectual environment in which the work could develop.

Ken Judge was particularly encouraging during the final drafting stage,
as were Sarah Curtis and Thea Sinclair, fellow thesis sufferers, whose
progress encouraged my own. My thanks are also extended to the members
of Invicta Athletic Club for their complete lack of interest in production
relations in old people's homes which surely kept me sane. The whole
manuscript was typed, on at least two occasions, by Carole Phillips. Her
typing expertise was surpassed only by her optimism that one day the
thing would be completed, bound and submitted. My greatest debt is to my
wife Jane. Behind every thesis is a thesis-widow or -widower and I
cannot thank her enough for her tolerance and her support. It was she
who corrected my many grammatical errors and I can only hope I can
complete this particular acknowledgement without further mistakes. I
thank you all very much indeed.

I searched a number of dictionaries of quotations for something apt
with which to complete this preface. There are no quotations from anyone
with my surname in the Penguin Dictionary of Modern Quotations, but
the nearest is one John Knappswood who once said: "Commit no thesis".
Alas, the deed is done.

Martin Knapp,
15th December 1980.

DECLARATION

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I can without hesitation or reserve assure the examiners that the argument of the thesis is substantially Mr. Knapp's own intellectual creation. Specifically:-

(a) The bulk of the thesis reflects Mr. Knapp's scholarly efforts working with less guidance and help than those that define the conventional limits for the supervision of the individual work of graduate students.

(b) Those sections of the thesis which reflect the collaborative work of Mr. Knapp and I are correctly described in his preface. In my view, Mr. Knapp's thesis substantially extends the treatments in the collaborative book and paper in the most important of those sections.

(c) Those who assisted Mr. Knapp worked under his direction. Their contributions consisted solely of the routine computation of models and the handling of data.

Bleddyn Davies

December 1980

ABSTRACT

Old people's homes pursue, either explicitly or implicitly,
a number of goals or objectives. These may be specified
at both an "intermediate" stage (in terms of beds or places
provided, and services rendered) and at a "final" stage (in
terms of improvements in the well-being of residents, and
benefits to residents' significant others). Successful care
may thus be described as care which achieved these objectives,
if only partially, and the degree of success defines the
intermediate and final outputs of the home. Three groups of
factors will determine the degree of success or the outputs:
the resource inputs (labour and capital), the personal character-
istics and experiences of residents before, during and after
entry, and the social environment and caring milieu of the home.
These last two groups comprise the non-resource inputs into
care. This "production of welfare" perspective on care is
described and its relationship with the gerontology, social
work and social policy literatures examined in the first half of
the thesis. The perspective is also used as a structure
to discuss some of the post-war developments in residential care
for the elderly, although a comprehensive historical review
is not attempted.

The second half of the thesis uses the production of welfare
approach to define the concept of "efficiency" in residential
care, and to examine it from five different perspectives. Four
of these perspectives or modes of analysis are applied using
quantitative evidence for a number of samples of homes. Cost
and production functions for intermediate outputs are estimated
and their policy potential evaluated. The other two quantitative
analyses focus on staff levels and ratios, and on staff turnover
and vacancies. The final chapter examines the usefulness of
cost effectiveness and cost benefit techniques for policy develop-
ment and the pursuit of efficiency in the personal social services.

ABBREVIATIONS USED IN THE THESIS

CIPFA	Chartered Institute of Public Finance and Accountancy
CPA	Centre for Policy on Ageing
DHSS	Department of Health and Social Security
IMTA	Institute of Municipal Treasurers and Accountants
LAPS	Local Authority Planning Statements
LSI	Life Satisfaction Index
NCCOP	National Corporation for the Care of Old People
NHS	National Health Service
NOPWC	National Old People's Welfare Committee
PESC	Public Expenditure Survey Committee
PGC	Philadelphia Geriatric Centre
PSSC	Personal Social Services Council
PSSRU	Personal Social Services Research Unit

Chapter 1   PRODUCTION RELATIONS AND RESIDENTIAL CARE OF THE ELDERLY

1.1   Introduction

A striking feature of economic and social development in the
Twentieth Century has been the steady growth in public expenditure. This
has been true of most economies, and has been particularly marked in the
Western industrialised nations. In the thirty years immediately following
the second world war, public sector growth was especially fast and was
accompanied in many countries by a change in character as well as
extent. In Britain, until recently at least, the importance of military
expenditure gradually waned and the five principal social services - health,
education, welfare, housing and social security - took an increasingly
large slice of the expenditure cake. The establishment and consolidation
of the welfare state has been such that today these five services
together account for roughly sixty per cent of total public expenditure
on programmes.

The oil crisis of 1973 prompted a careful reappraisal of public
policies and programmes. As a result, severe restraint was imposed upon
virtually all categories of public expenditure. Real growth rates in
component spending plummeted towards and then below zero, and current
economic forecasts give little hope for a return to positive public
expenditure growth in the short or medium term. The transition from a
period of rapid growth to one of stagnation and recesssion (or, more
accurately, depression) is necessarily painful, requiring policy makers
at all levels of government to exercise skill and ingenuity to avoid the
many pitfalls of false economy and drastic and indiscriminate financial
pruning. Within the five social services, where the interface between
public agency and private consumer or client is at its most sensitive,
the need for skill, ingenuity and tact is crucial. Of course, these
services have not been without their problems in the post-war period of
expansion, but few of them bear relevance to the problems of recession.
Growth can be such a soothing panacea for so many economic ills that
recent cut-backs have revealed an embarrassing ignorance of the basic
wherewithals of economic survival. Nowhere is this more true than in the
personal social services, where pre-recession growth was fastest
(averaging 10 per cent a year in real terms between 1968/9 and 1974/5) and
where the input of economic expenditure was probably least. Moreover, these

economic difficulties have followed closely on the heels of major reorganisation in both the personal social services and in local government, and have come at a time when the very identity of many constituent services is being called into question.

The need for careful introspection has never been more pressing, although the call for efficiency has long been heard. Both the Seebohm Committee (Cmnd 3073) and the Redcliffe-Maud Commission (Cmnd 4040) opened their Reports with pleas for efficiency, and more recently a Working Party of the Department of Health and Social Security (hereafter DHSS) argued that the economic and social developments of the first half of the decade "have tended to sharpen the need to consider aims, objectives and priorities with particular care against the background of increasing economic stringency and the shortage of key resources" (DHSS, 1976, paragraph 2.27). A year later, the Department was advocating "the rigorous pursuit of efficiency and economy ... wherever in the health and personal social services resources could be better used" (DHSS, 1977, p.18).

The aim of this thesis is to develop a conceptual and practical basis from which to address the problem of efficiency in one of the major components of the personal social services - residential care of the elderly. Starting from the perspective of the economist, the approach of this thesis is to adapt, and later apply, the general principles, nomenclature and analyses of conventional microeconomics, and particularly the so-called "theory of the firm", so that this theory may be usefully employed in the planning of residential care services for the elderly. The approach is entirely general, not only because it can be applied with equal validity and effectiveness to other services for the elderly, to services for other client groups such as children, and, indeed, to most of the human and social services, but also because it encompasses many of the approaches adopted by other researchers working from different perspectives and within different disciplines. The perspective is referred to throughout this thesis as the "production of welfare" approach.

1.2 The Production of Welfare Approach

Care services for the elderly in Britain today pursue, either explicitly or implicitly, a number of goals or objectives. That much is clear from reading the policy literature. Care services seek to reduce loneliness,

to boost morale, to provide shelter, warmth and nutrition, to enhance
social interaction and so on. The "success" of a service is thus
conceptualised in terms of the extent to which these policy objectives
are met or approached. In recent years an increasing amount of research
has been focussed both on the identification and conceptualisation of
these policy objectives, and on the measurement of improvement along one
or a number of constituent dimensions, where improvement is used loosely
(for the time being, at least) to include "reduced deterioration".

These policy or service objectives are rarely discussed without
explicit or implicit reference to a set of factors thought to have an
impact on the degree of success. Indeed, a large proportion of the research
studies commissioned in the gerontological and social work fields has as
one of its primary aims the identification of the factor or factors
responsible for the observed differences in outcome. Virtually any issue
of The Gerontologist will provide good examples of such studies, and Martin
Davies' (1974) review of social work research reported an increasing number
of "effectiveness" studies. Other studies attempt to take account of
these factors by adopting a research design in which experimental and
control groups of clients are compared over a period of time (e.g., Challis
& Davies, 1980; Goldberg, 1970). The range of characteristics believed
to exert an influence upon the degree of success achieved with a particular
form of caring intervention is clearly vast. These factors or character-
istics can be arranged for convenience into three groups, although "success-
ful care" is more a product of the interaction between and within groups than
a product of the separate influences of individual factors.

Firstly, the personal characteristics of clients will be of particular
importance in determining the degree of success. Of course, the criteria
of success should themselves be defined with reference to the spectrum of
individual and social needs presented to the personal social services.
Once the researcher has drawn up a general list of policy objectives and
drawn up a list of criteria for achieving them, it is still likely that
differences in client characteristics will be of influence. Among the
many characteristics of importance are the sex, age and dependency of the
client, certain traits of his or her personality, the individual and social
background to the episode of care, and the client's experiences during the
processes of admission and orientation. A second group of characteristics
are broadly "social" rather than individual in nature. Psychologists are
quick to stress the importance of a "good" social environment or caring

milieu. The number of different dimensionalities of social environment is
considerable. Among the more important dimensions are: regime, social
control and independence; motor control (environmental tolerance of motor
expression); privacy; stimulation and participation; communication and
interaction; homogeneity and flexibility; and continuity. Linked to these
dimensions of the social environment, but conceptually distinct from them,
are the attitudes, assumptions and role perceptions of the care staff.
The third broad group of influential factors are the physical resources,
principally staff and capital. Perhaps it is because there is an
assumption that the non-resource factors - the characteristics of the client
and his general social environment - are more important than the resource
factors that the latter are neglected in most of the literature. It is
important, however, not to neglect them in any examination of differences
in effect or outcome in residential care.

Thus far our argument has done little more than to draw out some of
the underlying theoretical perspectives and empirical conclusions of a
not inconsiderable body of research and writing on the care of the elderly.
However, set out in this way the argument makes plain the similarity between
a body of received opinion in the social welfare literature and the basic
premises of the economic theory of production. The economist's basic
assumption is that inputs (principally labour and capital) combine
together to produce outputs (goods and services). If therefore we are
prepared to accept that the three groups of influential factors listed
above - the personal characteristics of the residents, the dimensions of
the social environment, and the various physical resources - combine
together in such a way as to enable the residential home or the social
services department to achieve, either partially or wholly, its policy
objectives - improvements in, maintenance of, or lessened deterioration
in a number of dimensions of "well-being" - then we are accepting the
validity of the analogy that has been drawn between the social welfare
and economics literature. If, in addition, it is reasonable to assume
that administrators seek to achieve the objectives of residential care
without the unnecessary waste of physical, social and human resources then
the applicability of the economist's theory of the firm is confirmed. We
are then in a position to adapt and apply in the study of residential care
of the elderly those analytic techniques which the economist has found so
useful in his study of more conventional production processes.

The production analogy holds at both the resident and the home level. Individual residents may be likened to "production units" in that their individual improvements in physical, psychological, and social well-being may be related to differences in their basic characteristics (personality, background, dependency and so on) and to differences in their social and physical environments. At the home level, we can conceptualise, and in principle measure, the "success" of the home in achieving its objectives, most of which will in turn be conceptualised in terms of changes in individual residents, and relate these to differences between agencies in the resources made available for care, the general milieu of care, and of course the needs and characteristics of the clients.

In order that we may develop this production of welfare model so that it yields suggestions and prescriptions for the planning of residential and general care services it is advantageous to introduce and define four basic concepts. Each of these concepts has already been alluded to above but none has been defined with the rigour demanded by the production analogy. Firstly we can introduce the concepts of final and intermediate outputs.[1] Final outputs measure the changes in individual well-being, adjustment, and so on, compared with the levels of well-being in the absence of a caring intervention. In other words, final outputs measure the degree of success of the residential home or social services department in meeting its policy objectives, where due consideration is paid to the situation of the elderly client had care not been available. In contrast, intermediate outputs are operationally defined in terms of the care services themselves, rather than the effects of these services on the clients. Thus, for example, a home with 40 residents, all of whom are heavily dependent (and confused) on the staff for the activities of daily living is "producing more intermediate output" than a home with 40 very ambulant and rational residents. Intermediate outputs are clearly inferior to final outputs as an aid to policy-making in residential care,

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[1] Similar distinctions have previously been drawn in the social policy, economics, political science, and gerontological literatures. Most distinctions use their own terminology: outcomes, outputs, quality, effectiveness, throughput, C-outputs, D-outputs, but the concepts are broadly the same. Some of the relevant studies are those by Bradford, Malt & Oates (1969), Brody & Krailo (1978), Challis & Davies (1980a), Goldberg (1970), Kurowski (1977), Linn, Gurel & Linn (1977), Sager (1979).

but are useful for a number of reasons. Firstly, official statistics and general planning statements for the personal social services are almost always couched in terms of intermediate outputs: improvements in the provision of residential care of the elderly are expressed in terms of quantities (the number of additional residential places and so on) rather than qualities or outcomes. Secondly, it is clear that the provision of one additional residential place or the care of a rather more dependent resident is an output. The additional place or care has been made possible only by the employment of further resources; that is, the physical extension of the residential home and/or the extra efforts of residential staff. These two reasons immediately suggest a third. Because the provision of care services per se is an output and because official (routine) statistics are generally couched in these terms, the researcher who does not have the opportunity to collect information relevant to the measurement of final outputs may reasonably, temporarily, concentrate his attention on intermediate indicators of output. Provided that the superiority of final output indicators for the formulation of policy is acknowledged, the careful and sensible use of intermediate indicators will be a fruitful pursuit.

The other two concepts appear on the other side of the production equation. These are resource inputs, and non-resource or quasi-inputs. Resource inputs are the conventional inputs or factors of production distinguished in economics and in the present context include the staff, physical capital, provisions and other consumables. These characteristics of the physical environment are often stressed in policy-documents but, as we have argued above, tend to take second place to characteristics of the social environment in the arguments of social workers, gerontologists and other commentators. However, to neglect the influences of the resource inputs is to severely limit the practical usefulness of other research findings. Differences in resource inputs will be partly responsible for observed differences in the extent to which residential care objectives are reached, both because of their direct influences upon a resident's welfare and because of their indirect influence through the configurations of social environments that they make possible. Non-resource inputs (or quasi-inputs) are those determinants of final and intermediate output which are not physical or tangible. Obvious examples are characteristics of the social environment and of residents themselves. The distinction between

resource inputs and non-resource inputs is an important one, both for causal argument and for policy formulation. Many of the (productive) influences of the resource inputs upon final outputs are mediated through and by the non-resource inputs. Thus, for example, the potentially detrimental influences of a poorly designed home may be ameliorated by a particularly supportive or stimulating caring environment. Furthermore, it is the resource inputs which enter the financial accounts of a caring agency and which, in the economist's terminology, have identifiable opportunity costs.

It should also be noted at this stage that we shall have occasion during this thesis to make the distinction between endogenous and exogenous outputs and inputs. It is difficult to think of circumstances in which any of the conventional final outputs are determined exogenously, that is outside the production of welfare process, but there will be occasions when some of the intermediate inputs, such as the number and dependency of residents, will be so determined. This, indeed, is often the justification for estimating cost functions in preference to production functions. The endogeneity or exogeneity of the resource inputs and non-resource inputs will also be a matter of context and of time-scale. Typically we will be assuming that many aspects of the social environment or caring milieu are endogenously determined by, among other things, the attitudes and perceptions of the head of the home and other staff, whereas the personalities of new residents are rather more exogenous influences upon the outcome of the care intervention. Maintaining the distinction between the four concepts allows us to state the basic premise of the production of welfare approach: final and intermediate outputs are, in general, determined by the levels and modes of combination of the endogenous resource and non-resource inputs, given the exogenously determined values of other resource and non-resource inputs. That the various inputs are highly inter-correlated should be no cause for concern; the production relations approach is quite capable of disentangling these intercorrelations and, indeed, uses them to good effect in the development of care policies.

The production of welfare approach has a number of contributions to make to the residential care field, and we describe these briefly later in this chapter, and illustrate some of them later in the thesis. It should be emphasised at this stage, however, that there is nothing about the approach

that encourages the researcher to perceive complex human relationships as simple and mechanistic. Quite the opposite is the case, for the approach can more nearly match the complexity of reality than any of the alternatives so far developed, and encourages precision about issues and relationships which might otherwise be fudged. The production relations approach forces the researcher to carefully examine relationships whose existence and stability are too easily assumed by those examining partial evidence in the light of preconceived ideas. Clearly, there are major differences between the production of, say, motor cars, and the production of welfare in old people's homes, but provided we remember that we are arguing by analogy, discussing a "quasi-technology" based substantially on perceptions and assumptions of actors, then nothing but good can come from the fresh insights that the perspective can offer.

The production relations approach has much in common with a number of other approaches to policy making and analysis in the personal social services. The systems analysis or operational research approach under-lying the work of, for example, the DHSS Operations Research Unit posits inputs and outputs and a causal relationship between them (see, for example, Fanshel, 1975; and Jackson & Himatsingani, 1973). However, as will become clear from occasional references to this approach in the pages and chapters that follow, there are a number of characteristics of the systems analysis methodology which rather limit its applicability in a study of care of the elderly. Our approach differs from the systems analysis approach in its specificity of policy questions, its repertoire of modelling techniques, its specification of output as multi-dimensional, partly subjective and resident-specific, and its concern with non-resource as well as resource inputs. The balance of care models, such as that described by Mooney (1978), also have their limitations. Mooney is well aware that his initial application of the balance of care model "fails to measure output, effectiveness and benefit /ˉand thereforeˉ7 has severe limitations" (ibid. p.150), but in principle the approach is certainly not inconsistent with, and in fact could be generally supportive of, the

production relations approach discussed here (Knapp, 1980; Mooney, 1980).

The production of welfare approach also has a certain amount in common with the so-called social indicators movement, particularly with the recent trend towards subjective indicators; see, for example, Abrams (1973), Hall (1976), and the Organisation for European Cooperation and Development (1974). Man does not live by bread alone, the subjective social indicators approach would argue, and therefore his welfare can not be adequately measured purely by indicators of his material condition. Our approach differs in as much as we focus on one particular group of the population - the elderly - and can therefore call on an explicit policy paradigm to direct and validate our argument. Attempts by Abrams (1978) and Peace, Hall & Hamblin (1979) to extend the work of the former SSRC Survey Archive on subjective social indicators for general populations to research on the well-being of the elderly are interesting but as yet have not achieved sufficient breadth or policy-insight in the formulation of research questions and methodologies to yield the sort of information needed by the policy maker.

Support for the production relations approach has also come from within the mainstream of gerontology, although few of the studies that use measures of output that are content-valid by the criteria of the social welfare paradigm systematically assess the importance of resource inputs while controlling for other important non-resource inputs. Linn et al (1977) conducted some interesting research in Miami, Florida, studying one thousand males, mean age of 68 years, who had been transferred from a general medical hospital into forty community nursing homes. Functional status was measured one week after transfer and again six months later, and each patient classified as improved, the same, deteriorated, or dead. These so-called "outcome" indicators were then compared, in a multivariate analysis of variance framework, with a few personal characteristics, measures of staffing levels, and "quality of care" indicators. A number of significant associations were found. There are a number of respects in which this particular study differs from the kind of research suggested by the production of welfare approach. The health care as opposed to "social care" context is undoubtedly a major source of discrepancy, for it will be argued below that it is not enough to confine one's output measures to changes in functional status; it is necessary to examine certain

changes in subjective well-being. The approaches would also appear to differ in the specification of "inputs" (although Linn et al do not use this terminology) and the specification of relationships. The set of influences examined by Linn and her associates is very small in comparison with the set of resource factors which is generally the concern of the policy maker, and also in comparison with the set of non-resource characteristics of individuals and environments conventionally discussed by the gerontologist. Furthermore, a multivariate analysis of variance is hardly a sufficiently sensitive estimation procedure to tease out the nuances of welfare production or generation in residential care of dependent individuals. Nevertheless, Linn et al have probably come closest to the kind of approach advocated in this thesis, and they themselves could find "no studies ... that considered several homes and examined patients on a longitudinal basis, particularly concerning their condition before and after admission to the home" (ibid., p.337). Other studies of elderly people in care, either in Britain or elsewhere, equally fall short of the full production of welfare model, despite their generally extremely interesting designs and results. Townsend (1962) and Greenwald & Linn (1971), for instance, simply present intercorrelations of home and resident indicators, leaving the reader to make his own vague inferences about causality. Others, such as Curry & Ratliff (1973), Lawton, Nahemow & Teaff (1975), Levey, Ruchlin & Stotsky (1973), and McCaffree & Harkins (1976), have only partial indicators of final output and seriously incomplete sets of resource and non-resource inputs.

Finally, mention should perhaps be made of the few previous suggestions for an explicit economic approach to the study of residential care services for the elderly. Binstock (1966) set out a number of serious deficiencies in gerontological research in relation to its usefulness for the establishment of social welfare programmes. His comments, now over a decade old, have gone largely unheeded. He argued, inter alia, that the production function model was probably the most useful approach to follow. Lawton (1970b) discussed the five major components of organisations originally set out by Katz & Kahn (1966), laying particular stress on the need for research on the production component, and Wiseman & Silverman (1974) propose a similar emphasis. Berliner (1972, chapter 10) couched his discussion of the generation of individual welfare in economic terms and in so doing

highlighted both the applicability of the 'economic' model and its
concomitant problems in this gerontological setting. Dobra and Gardiner
(1976), in an unpublished paper, set out how one might conduct an economic
analysis of care services for the elderly, and there are, of course, a
whole host of cost-effectiveness comparisons (partially reviewed by
Doherty, Segal & Hicks, 1978) to which we shall return in chapter 11.
We can also call upon a vast social work literature which has distinguished
means from ends, resources from goals, activity from outcome. Goldberg
(1970, chapter 1) and Goldberg et al (1979) review much of the experimental
social work research which has adopted just such a stance, and Brody &
Krailo (1978) provide a summary of some supportive American social work
research.

1.3   The Potential Contribution of the Production Relations Approach

The production relations approach can contribute to our understanding
of practice, and therefore to policy-making, in the personal social
services in a number of ways. First, even the most cursory reading of the
social welfare literature reveals a whole host of theoretical and practical
perspectives on care, but no coherent body of theory to explain them. It
also reveals an even larger number of assumed and statistically corroborated
causal relationships between aspects of care, carers, and clients. Recently,
much of the literature has been critical of the vagueness with which
providers specify ends, means and their interconnection. The Eighth
Report of the Expenditure Committee (1971-72, HCP515) expressed concern
about "the lack of means of measuring the extent to which /the/ general
aims are achieved and the extent to which the health and personal social
services contribute. ... In each case the goal /of care/ if achieved,
depends on many factors besides the services provided" (Expenditure
Committee, 1971-72, paragraph 15). Goldberg posed the question thus:
"Assuming that we are able to define some goals which permit the
formulation of criteria of success or failure in relation to specific
problems, and that we can describe the 'treatment' given in different
cases, how can we be sure that the outcome - favourable or unfavourable -
is due to the social work carried out, rather than to the myriad of
events in the lives of our clients which have nothing to do with social
work?" (Goldberg, 1970, p.26). Whilst the production relations approach
cannot hope to contain the multeity of alternative perspectives that have

been put forward, it can nevertheless provide a coherent ideology and
a coherent conceptual framework within which to examine the causal and
non-causal relationships between characteristics. What is more, the
production relations approach suggests which relationships should be
examined and how these may be interpreted, and it does so in a framework
which is neither vague nor mechanistic.

Many of the policy questions posed in the social welfare literature
may be answered within this perspective. The production relations
perspective is isomorphic with these policy questions and, when applied
in practice, can yield the factual basis for the provision of answers to
such questions as: What are our staffing requirements? What are the effects
of qualified residential care staff in key positions in old people's
homes on the standards of care and the final outputs? What other staff
characteristics most contribute to the quality of life of different types
of resident? How do resource inputs affect non-resource inputs and thus
the delivery of care? How important is the size of home in the deter-
mination of the quality of life of residents and in the determination of
the resource implications of care? What other aspects of home design are
associated with differences in final output and/or differences in
resource requirements? With what probability does more mean better in
the residential context? Can homes be over-staffed and over-provided
and thus increase resident dependency? Which are the 'best' homes for
different types of client? In what ways do capital expenditures determine
current expenditures? To what extent are recurrent resource requirements
influenced by the size and nature of the capital expenditure on new and
converted premises? How substitutable are capital and manpower inputs
in the production of care services and the production of final outputs?
Does the cost of care vary systematically between settings? How much
more must homes spend in order to secure markedly better standards of care?
How sensitive is resident well-being to varying mixes of the confused,
the aggressive, the depressed, the extremely dependent, and those admitted
for only a short stay? What are the implications for resident well-being
of different social arrangements within homes? How far do design features
affect the trade-off between physical risk and resident autonomy?
Broadening the arena slightly, we can ask similar questions about
differences between alternative care services. Is it necessarily the

case, for example, that domiciliary care is both cheaper than residential
care and better for clients? What is the 'optimal' balance of alternative
care services for the elderly? Broadening out further still we can ask
questions on the basis of the production of welfare approach about
the productivity of the public sector. Is it really the case, as Bacon
& Eltis (1976) among others have argued, that the productivity of the
public sector has declined in recent years?

Finally, the production relations approach provides a repertoire of
tools - theoretically valid constructs with extensive supportive statistical
techniques - whose primary aim is to answer the sort of policy questions
listed above. The modelling techniques are purpose-built to test arguments
about policy questions with statistical evidence. The major modelling
techniques stand at the forefront of the production relations approach;
these are the production function , cost function, and factor demand or
employment function techniques. Whilst there are significant differences
between production, cost, and employment functions as applied to
manufacturing processes and those applied to the caring and other human
services, the biggest difference arises from the potential uses of the
analyses (Hanushek, 1979, p.354). Manufacturing firms are unlikely to
alter their production techniques in the light of empirical evidence from
a production, cost or employment function analysis. In contrast, answers
to the questions posed by the production relations approach to the
personal social services will be of great concern to policy makers in
both the statutory and voluntary sectors, and the pursuit of efficiency
should spur policy makers to act upon the findings. Paradoxically, it
is precisely because the personal social services do not operate in the
kind of competitive world assumed by the economist that the tools of
economic analysis have most relevance.

1.4   The Structure of the Thesis

The contents of this thesis can perhaps most usefully be summarised
by reference to the illustrative list of policy questions posed in the
previous section. Whilst I shall be unable to provide answers to all of
these questions, or indeed to a majority of them, the aim of the thesis
is to examine how these questions could be answered. In other words, for
those policy questions not directly confronted with evidence, my aim will

be to pose them in a way which would allow them to be answered if one had the resources to undertake the necessary research project. Whilst it might take a large and not inexpensive study to be able to provide answers to all of these questions, it is nevertheless the <u>identification</u> of the modes of research which has very often prevented progress in this field. To this end two broad kinds of exercise have been undertaken. Firstly, I have reviewed the extensive gerontological, social policy, social work and relevant social psychology literatures in an effort to define more precisely the components of the production of welfare system. The findings of this search are partly summarised in chapters 3, 4 and 5.[2] The conceptual framework introduced in section 1.2 above is used to impose some order on the myriad of theories, perspectives, associations, causal relationships, and mere hunches of previous academics and comment-ators. My general aim in these three chapters, therefore, is to review the (mainly) British and American literatures in order to tease out those associations and causations which will be important for devising an "efficient" residential care policy for elderly people, where the term "efficient" is vaguely defined at the moment to mean maximum benefits for given inputs, or minimum inputs for given benefits.

The production of welfare framework is also used as a structure to discuss some of the post-war developments in residential care for the elderly, although it should be emphasised that a comprehensive historical review is outside the scope of this thesis. It is important, however, to use historical experience to understand and illustrate the production of welfare approach, and also to place our arguments and suppositions in historical context. In fact, it will be seen that the production of welfare perspective has gradually but erratically been developed in the post-war policy literature. Chapter 2 therefore summarises the major post-war trends and policies in residential care of the elderly, and provides a basis for the historical "reviews" included in chapters 3, 4 and 5. Chapter 2 in fact allows me to examine each of the outputs, resource inputs and non-resource inputs in historical context without repeated reference

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[2] Some other elements of this search were conducted in collaboration with Bleddyn Davies and are not therefore included in this thesis. The full account of the production of welfare approach to old people's homes is given in Davies & Knapp (1981).

to rather more fundamental "macro-policy" developments and changes. A number of interesting comparisons are made possible within this conceptual framework.

Chapter 6 provides a link between the predominantly conceptual, and partially historical, material of chapters 2 to 5 with the predominantly empirical material of chapters 7 to 11. In this linking chapter, the concept of efficiency is more rigorously defined and the modes of efficiency analysis introduced and compared. The subsequent five chapters take up five modes of efficiency analysis in turn, using secondary data to estimate causal relationships in order to answer, or in one case illustrate how one could answer, some of the policy questions posed in section 1.3. Problems and examples of production function modelling are the subject of chapter 8, and follow a chapter on the specification, estimation, and interpretation of cost functions. Production and cost functions are actually "mathematical duals", although this duality is rarely exploited in practice, and so the findings of these chapters may usefully be compared and contrasted, even though they employ different data bases. Chapters 9 and 10 examine aspects of the staffing of old people's homes. The first of these chapters seeks to explain how and why homes vary in their staffing levels and their staff-resident ratios; whilst the second examines why staff leave the employment of old people's homes. Both chapters therefore have important implications for manpower policies and planning in the personal social services. The eleventh chapter examines the usefulness of cost effectiveness and cost benefit analyses for policy development and the pursuit of efficiency in the personal social services. Whilst a full-blown analysis was not possible, the chapter reaches some tentative conclusions on the relative costliness and effectiveness of residential and domiciliary care services for the elderly by pulling together the findings of a large number of previous studies.

Chapter 2   UNDERLYING TRENDS IN ATTITUDES AND POLICIES SINCE 1948

2.1 Introduction

The production of welfare perspective on care of the elderly has,to
a greater or lesser extent, been shaped by the ideological and policy
changes and trends of the post-war period. Many of the essential elements
of the perspective were first explicated in and immediately following the
National Assistance Act of 1948, and certainly since that time the major
components have been defined and refined by underlying attitudes and
ideologies, by policy recommendations and requirements, by experiences,
and by resource constraints. In order to properly understand the production
of welfare approach, therefore, it is necessary to examine the development
of care services for the elderly at least since 1948. We may also, of
course, turn this association on its head and use the production of
welfare perspective itself as a useful framework within which to examine
historical developments. The purpose of the present chapter is to draw
out a number of underlying trends in care ideologies and policies, in
order to provide a basis for a more thorough description of the production
of welfare approach in the three chapters that follow. Chapter 3 will
discuss outputs and examine their levels and trends in the post-war period.
Chapters 4 and 5 provide similar descriptions and historical comparisons
for resource inputs and non-resource inputs, respectively.

Attitudes towards the elderly, and philosophies or ideologies of care,
are fashioned and conditioned by a large number of factors, some of them
exogenous to the social services "system" and others not. Attitudes and
ideologies will themselves help to fashion and develop policies of care.
The structure of this chapter is loosely determined by these considerations.
In the next section I look at some of the underlying attitudes which
must be examined if we are to understand the policy developments of the
last thirty or so years. These attitudes are implicit, and, less often,
explicit, in the writings and sayings of administrators, academics,
politicians, clients, professionals, and the general public. In comparison
with most other social services in the post-war period, attitudes regarding
welfare or personal social services for the elderly have been more
consensual than conflicting. It is true that central government and local
authorities have not always seen eye to eye, and that social services
professionals and management have often held quite different attitudes,

but on the whole there appears to have been rather more agreement than disagreement. It will not therefore be necessary to continually distinguish these different groups in what is, after all, simply a background discussion, but from time to time it will prove helpful to discuss major differences of opinion. Similarly, I shall rarely have anything to say about the acquisition, generation or development of attitudes and ideologies themselves. Many of these attitudes, as noted above, have developed as a result of various policy changes, whilst for others the causal connection, if any, is in the reverse direction. These underlying ideologies or attitudes will be discussed under about a dozen heads in section 2.2.

Section 2.3 examines the generation of the policies themselves. Given the objectives or desired attributes of care services or care outcomes, one could view the policy maker as wishing to move ever closer towards them. However, progress towards these objectives will be hindered or fostered by a number of extraneous influences, such as the vicissitudes of macroeconomic policy, the developments in substitute or complementary services, and so on. Furthermore, the objectives or desired attributes of a system of care or configuration of outcomes will themselves be continually changing in response to demographic and social trends, and in the light of experience and research findings, and with the changing tide of political emphasis and a more informal public opinion. The economist would see this perspective on policy development as isomorphic to the stock adjustment model often used in the study of investment or expenditure on consumer durable goods. This is simply one way of explaining why public and private ideologies are not exactly mirrored in policies. The approach does not, and of course cannot, claim to explain fully the vagaries of policy.

2.2 Developing Ideologies

Ideologies and attitudes are notoriously difficult to define and record, although an extensive literature search revealed no real shortage of opinions about residential care of the elderly. On many issues there was also a marked consensus of opinion. In an attempt to avoid imposing an unnecessarily tight structure on these subjective viewpoints, and also to avoid the false "periodisation" of history, I have picked out nine areas

of concern or foci of opinion and examined each of them over the period since about 1948. Some of these foci quite clearly developed over the period, as for example the move from undifferentiated to differentiated individual needs, whilst others remained fairly constant or unchanged throughout, such as the continual emphasis on community care. The first sub-section, however, "sets the scene" by introducing the National Assistance Act of 1948, its genesis and its objectives.

2.2.1 The National Assistance Act of 1948. The passing of the National Assistance Act represented the culmination of a rising tide of public concern about the social plight of the elderly in Britain. The Act can best be understood against a backcloth of more sympathetic attitudes towards the unfortunate which had unfolded during the first half of the Century. The Reports of the Poor Law Commission in 1909, a burst of social legislation, widespread long-term unemployment, and other changes in social and economic conditions encouraged the growth of the socialist and labour movements which in turn provided a further spur to attitudinal change (Parker, 1965, ch.1; Williams, 1967, p.37). The Nuffield Foundation Survey Committee observed "a considerable awakening of public interest in the problems of old age, an awakening that has manifested itself in a sympathetic attitude to old people and a widespread desire to be generous to them" (Rowntree, 1947, p.95). The development of generosity and sympathy, however, is insufficient to explain the general optimism that greeted the post-war reforms and what was necessary, and what in fact occurred, was the development of perceptions of old age as a social problem. The war-time conditions made the elderly more vulnerable and, more pertinently, more obviously vulnerable (Younghusband, 1978, vol.1, p.195). Furthermore, members of the middle classes were exposed to conditions normally endured only by less fortunate members of the working classes. Patients from London's hospitals were evacuated to some of the bleak public assistance institutions in the country, and there was a general shortage of domestic help for the old and infirm, allied to sharply rising costs of private nursing home care. "Conditions which previously had been known only to the sick and aged poor were, as a result, more widely discussed by doctors, welfare workers, and the general public" (Titmuss, 1950, p.501). The National Old People's Welfare Committee (NOPWC) was established in 1940 and charged with the

responsibility of promoting the welfare of the elderly. By 1948 the
NOPWC had encouraged voluntary organisations to open 600 small residential
homes and the Nuffield Committee felt that it was "no longer in accordance
with the wishes of informal public opinion that old people, unable to
lead independent lives, should be housed in large, mixed Institutions"
(Rowntree, 1947, p.99). The activities of the Nuffield Foundation,
sponsoring the surveys in York and Wolverhampton (Rowntree, 1947, and
Sheldon, 1948), establishing the National Corporation for the Care of
Old People (NCCOP) in 1947, and generally channelling monies to voluntary
organisations, were just part of a "strong current of public interest,
research and medical investigation" (Titmuss, 1950, p.501) which heralded
"the discovery of the problems of old age" (Townsend & Wedderburn, 1965,
p.10). The war-time experiences and immediate post-war years thus
formed the watershed between widespread and uncommitted generosity
and positive, ameliorative action. The emergence of old age as a social
problem in the post-war years ensured the acceptance of social responsibility
for the ills of individual members, an acceptance that remained
unchallenged until the recession years of the late 1970s.

The Nuffield Committee Report is widely regarded as a synthesis
of the viewpoints about care of the elderly held by professionals and
administrators in those early post-war years. That the National Assistance
Act of 1948 followed closely the recommendations set out in the Report
is not so much an indication of the influence of a small group of informed
men and women, but rather an indication of the general attitude held
about the elderly at that time. The "hotel model" of care set out by
Bevan reflected the attitudes of those in post during the 1940s. Dissension
has never been marked in this area of welfare provision and public
concern, but even so the 1940s were characterised by an unusual degree
of consensus. Bevan's view of the new local authority home as a
residential hotel had all the marks of political calculation, post-war
optimism and a possibly misguided sense of public altruism. The Nuffield
Committee found that small voluntary homes, with no more than 40 or
50 residents, were far and away the best form of extant provision, and
the Ministry of Health modelled its own homes exactly along these lines.

2.2.2 The Lack of a Philosophy of Care. The National Assistance Act

was "a major turning point in the development of residential provision"
(Personal Social Services Council, 1975, paragraph 30) but has neverthe-
less been roundly and rightly criticised for its negativity. The Act
established provisions which "were based on past conceptions rather
than on new thinking which was beginning to take shape" (Ruck, 1960, p.120),
and removed the Poor Law philosophy of care without replacing it with a
new philosophy. This lack of a coherent philosophy of care for the
elderly, coupled with a lack of coordination and cooperation between the
major social services, hampered the development of the welfare services
for much of the period after 1948. In 1952 the policy approach to old
age was criticised for being nothing more than a "philosophical vacuum"
(J.A. Oliver, quoted by Sheldon, 1954, p.153), and the Boucher (1957)
survey for the Ministry of Health and Townsend (1962, p.372) both echoed
this dissatisfaction. Yet, two decades later, the Personal Social
Services Council (hereafter PSSC) was complaining that "no fundamental
philosophy exists" which may explain "the comparable lack of stated or
written objectives upon which residential care should be provided"
(PSSC, 1975, paragraph 51).

2.2.3 Who Should be in Residential Care?   The characteristics of
residents at the point of admission to the home are important non-resource
inputs into the production of welfare process (see chapter 5). The
recommended criteria for admission laid down by the Ministry of Health
and the DHSS have changed during the last thirty years. Section 21(1)(a)
of the National Assistance Act charged local authorities with the
responsibility of providing residential accommodation for "persons who by
reason of age, infirmity or other circumstances are in need of care and
attention which is not otherwise available to them". The ambulant elderly
were thus eligible for admission and were encouraged to become residents.
The Boucher Report noted a reluctance among local authorities in the
period 1945-55 to accept the very frail (Boucher, 1957, p.38), and by
1955 the changing needs of the elderly had been recognised. Circular
3/55, issued by the Ministry of Health in 1955 and based partly upon the
role and experiences of the voluntary organisations since 1948,
modified building plans for new homes. Two years later, Circular 14/57
provided a more explicit statement of the criteria for admission, setting
out the respective responsibilities of welfare and hospital authorities

and recommending that accommodation in old people's homes be provided for the active elderly person clearly in need of care, perhaps because of a minor illness, the "infirm and senile", and the dying. For the first time, the policy emphasis had shifted to the frail and the dying, although it could be argued that this much was implicit in the 1948 Act.

A major change came in September 1965 with the issue by the Ministry of Health of a Memorandum for the Local Authorities and Hospital Authorities (Ministry of Health, 1965). The Memorandum made recommendations for joint planning and operation, and suggested that elderly people were to be admitted to homes when "unable to maintain themselves in their own homes, even with full support from outside", but not when in need of "continuous care by nursing staff" (ibid., paragraph 5). These recommendations were updated in July 1977 with publication of a further Memorandum of Guidance (DHSS, 1977a). Less emphasis was placed on criteria for admission, presumably because the Department felt that local authorities were well aware of the demands placed upon them by the needy elderly and perhaps because of the variety of innovatory schemes for care of the elderly being introduced as alternatives to conventional residential care.   "Residential homes are primarily a means of providing a greater degree of support for those elderly people no longer able to cope with the practicalities of living in their own homes even with the help of the domiciliary services" (ibid., paragraph 3).

2.2.4 Changing Responsibilities and Expectations. The 1948 Act firmly established the State as the major provider of welfare services for the needy elderly. Encouragement was to be given to voluntary organisations through cooperation, though little finance was available, and indirectly to private organisations and individuals by suggesting only the most innocuous standards for registration and inspection.[1] There was a definite shift away from individual responsibility for social and medical ills to a social responsibility. The State was to bear this collective responsibility, and at a level which would have been inconceivable at the turn of the Century. Over the period since 1948, State provision of

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[1] This was probably not intended, or if it was it was probably not expected that private bodies would survive as such important providers of residential care.

residential services has grown considerably faster than either voluntary
or private provision. Nevertheless this growth in provision has been
outstripped by "rising professional and community expectations about the
amount and quality of services which old people should receive"
(Expenditure Committee, 1971-72, paragraph 11; see also McCreadie, 1975,
p.59; Parker, 1965, p.14; Parker, 1969, p.51). These rising expectations,
partly attributable to changes in views about the balance of family and
social responsibilities, have continued to rise despite the rapid
deceleration occasioned by the economic recession of the 1970s. The
growth of informal care and the realisation of the complexity and
comprehensiveness of need (see 2.2.5) have further encouraged expectations
of a more modest role for the State (Plank, 1978), and indeed one that
would appear to be necessary in times of austerity. Until 1970, local
authorities had been constrained, by both their own departmental structures
and by the Ministry, from experimenting in new and more flexible services
(Davies, 1968, pp.291-4). The Seebohm reorganisation encouraged
initiatives and accelerated the already fast-moving trend to which we now
turn.

2.2.5 From Undifferentiated to Differentiated Individual Needs. One of
the most noticeable trends of the last thirty or forty years has been
the move towards rather more individualised caring strategies for the
elderly residents of homes. This trend from undifferentiated to
differentiated individual needs was common to a number of social services
in this period (Dingwall, 1977), and can be attributed both to the changing
ideologies of higher level policy-makers and political parties (ibid.,
p.306), which facilitated the change,and to the changing tide of opinion
among social work professionals (Donnison et al, 1965), which encouraged
it. The rush of social legislation in the late 1940s had included an
implicit recognition of individual needs, but had removed the unspecialised,
unsegregated workhouses without replacing them with individually-orientated
care services. Ministry of Health Circular 11 of 1950 expressed "an
urgent need for further services of a more personal kind" and the years
that followed saw a move towards community care principles, towards
greater specialisation according to need within residential care, and
generally towards greater flexibility. It was recognised that the
problems of care could not be solved simply by providing more beds in
residential homes (Cmnd 325, p.210).

By 1959, the Younghusband Report on Social Workers was able to report a greater emphasis on "the individuality of the residents, their freedom to come and go, to preserve or make fresh links with the community and, as far as possible, to take a share in the running of the home" (Younghusband, 1959, paragraph 492). Three years later the Ministry of Health expressed their recognition of the development of a "realisation that /old people's homes7 should be so organised and administered as to meet more precisely the varying needs of special groups and even of different individuals. In the past the emphasis was on the provision of a range of services; now it is on ascertaining and meeting particlar needs" (Cmnd 1973, paragraph 9). Similar sentiments were expressed in subsequent Ministerial reports and memoranda,[2] and given further impetus by the Health Services and Public Health Act of 1968 and the Local Authority Social Services Act of 1970. Local experiments and initiatives were encouraged and it was perhaps inevitable, therefore, that the new services should more closely match the variety of needs. A survey by the Social Work Service of the DHSS to establish the impact of these Acts found "fresh thinking about life in residential care ... and better understanding of the importance of more individualised personal care" (DHSS, 1973a, p.17). Buildings were "less stereotyped" and "more easily adapted to flexible use". The census of homes in Scotland conducted by Carstairs and Morrison (1971) confirmed the generality of these findings, and today we can observe an encouraging variety of caring strategies and initiatives (Davies & Knapp, 1981, chapters 1 & 7). The realisation that needs are comprehensive, complex, and individual has both stimulated the search for alternative modes of institutional provision and given a spur to proponents of informal care services. What is more, it has generated the so-called "congruence" model of care which has aroused so much interest among American gerontologists.[3]

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[2] For example, the Ministry of Health Annual Report of 1965 stated that the aim of an old people's home was "to make clear arrangements for deciding from day to day how individual people should be help (sic) according to their needs" (Cmnd 3039, p.29).

[3] See chapter 5 for details and further discussion of this model. Incidentally the academic, and particularly psychology, foundations of this perspective would suggest that the congruence model pre-dated this recognition of individual needs and individualised care by at least two decades. See section 2.3.7 below for related developments and influences.

2.2.6 <u>Organisational and Humanitarian Concerns</u>. The post-war legislation
was expected, by the optimists at least, to be sufficient to sweep away
the material problems of poverty, of poor housing and inadequate education,
of poor health and poorer health care. In future, the problems would be
more subtle - "problems of mental rather than physical health, of personal
adjustment rather than material welfare, aesthetic amenity rather than
economic want" (Parker, 1965, p.14). The optimism of the early years
developed into a degree of complacency during the 1950s and early 1960s
and generated high expectations for the welfare services. There was still
an element of alarm, however, over the extent of unmet need revealed by
the volley of welfare initiatives. The alarm took many forms: there
was an underlying fear that the economy would be unable to cope with a
large and increasing proportion of non-productive dependents; and there
was disappointment that the social reforms of the 1940s had apparently
had such little impact. The Phillips Committee was appointed in 1953
"to review the economic and financial problems involved in providing for
old age, having regard to the prospective increase in the numbers of the
aged". The Committee reported in 1954 (Cmd 9333) but seven years later
it was still felt that care of the elderly was "a matter of growing concern
to a wide section of the public" (NOPWC, 1961, p.11). Younghusband's
review of twenty-five years of social work summarised these changes as a
development "from knowing the answers to beginning to glimpse the
questions. ... From complacently knowing what was good for other people
and manipulating them to conform,to new respect for their right to think
out and decide what they want and be helped to achieve it" (Younghusband,
1978a, p.18). In other words, there was a move to a degree of self-
determination in social work.

One can also see this gradual change in emphasis from "complacency
to concern" as the emergence of old age as a social problem, and as a
social problem whose nature has changed over time (Macintyre, 1977).
Interest in old age as a social problem was revived in the 1940s and 1950s
after lying relatively dormant for three decades. As we argued earlier,
the nature of the social problem in the immediate post-war years was,
in Macintyre's terminology, both <u>organisational</u> (that is, concerned with
the increasing burden of a dependent population) and <u>humanitarian</u> (stemming
from concern over the suffering of elderly people). It is the tension between
these two concerns, one related to "means" and the other to "ends", one
stressing the need to reduce costs and the other arguing for the expansion
of output, which helps explain the vagaries and vacillations of

post-war policies for care of the elderly. It was the organisational concern which dominated the humanitarian during the 1940s and early 1950s, but the humanitarian concern appears to have re-emerged, fuelled by a growing realisation of the complexity of individual need (2.2.5 above). This ensured "a fruitful coalescence of the organisational and humanitarian perceptions of old age as a social problem, acting to the benefit of both the public purse and of the welfare and happiness of the elderly" (Macintyre, 1977, p.56).

Towards the end of the 1960s the nature of the social problem of old age changed markedly. Macintyre claims that "overt interest ... died down" (p.56) during this period, but the discovery (or rediscovery) of widespread loneliness and hypothermia among the non-institutionalised elderly hardly warrants this description (Tunstall, 1966; British Medical Association, 1964; Royal College of Physicians' enquiry cited by Wicks, 1978). Successive Annual Reports from the Ministry of Health expressed concern over hypothermia.[4] The prevalence and dangers of malnutrition were also the source of considerable professional and non-professional concern at this time (Exton-Smith & Stanton, 1965). Thus, if the 1950s had uncovered a hidden extensiveness of need, the 1960s will perhaps be remembered for uncovering new dimensions of need.

The ebb and flow of these two concerns, these two perspectives of a social problem, continued into the 1970s. The doubt and disillusion that accompanied the uncovering of these new dimensions of need was partly dispelled in the heady early days of the post-Seebohm personal social services. Reorganisations in 1970 and 1974, and the very high growth rates in the major services, shifted the emphasis firmly back to the humanitarian perspective, but any lingering "organisational optimism" soon disappeared with the onset of economic recession in 1974. Today we can certainly recognise the dominance of organisational over humanitarian concern, and recently the DHSS felt the need to issue their first major policy statement for a number of years. A Happier Old Age, a discussion document to stimulate public debate prior to the preparation of a White Paper, was published in 1978 as an indication that "the Government is reviewing its attitudes towards elderly people" (Cmnd 7394, p.5).

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[4] Cmnd 2688, p.26; Cmnd 3326, p.33; Cmnd 3702, p.31; Cmnd 4462, p.25).

2.2.7 The Subordination of the Medical Model. For much of the post-war
period, the welfare departments of British local authorities were dominated
by the "medical model of care". Residential care services for the elderly,
the handicapped and mentally disturbed were particularly influenced in
this way. Some commentators, such as Smith (1979), even feel that the
medical model remained dominant until reorganisation in 1971, although this
view is not held by everyone (cf. Davies, 1968, and his evidence to Seebohm
Committee). The medical model, Smith argues, takes many forms: there is
a strict hierarchy of roles amongst staff and fairly rigid task
delineation; names and labels are medically orientated (units of accommodation
are "beds" and senior staff are "matrons"); resident dependency is encouraged
and individuality suppressed; dormitory accommodation was still being
built into newly designed homes until recently, and privacy was generally
unavailable. It should be noticed,however, that many of these characteristics
are common to the hotel model of care, envisaged by Bevan in 1948, as much
as to medical model, and also that not all of these criticisms are fully
justified (see chapters 4 and 5 below). It is true that many local
authorities established joint health and welfare departments in the 1950s
and early 1960s, under the overall control of the Medical Officer of
Health, but the majority remained nominally and effectively separate. For
those authorities with combined departments, the influence of the Medical
Officer of Health may well have been unduly medical: "It is perhaps
unfortunate that a group who predominantly think of themselves as
professionally-trained doctors who administer what are basically medical
services and their ancillaries should be in charge of the department whose
work includes the alleviation of perhaps the most heterogenous collection
of social problems facing any social service agency" (Davies, 1968, p.107).
The influence of many chief welfare officers was also rather limited by
a lack of qualifications other than a Poor Law relieving officer's certificate
(ibid., p.29), but as these officers retired they were gradually
replaced by officers professionally qualified in social work.

The number of professionally qualified social work staff working with
the elderly, particularly in residential homes, remained dreadfully small
throughout the whole of the period. Questioning of old people's home
staff by the Williams Committee revealed very little understanding of
the nature of residential social work or the skills involved (Williams,
1967, p.24). It was not widely recognised that something more than

"the motherly woman or the economical housekeeper" was needed (ibid., p.25), and on 30th September 1977 only 3.2% of all whole-time supervisory and care staff held the Certificate in Residential Social Work, as compared with 34.6% with a nursing qualification of some description (DHSS Staff Returns for 1977 - presented in table 10.1 of chapter 10).

The low status of work with the elderly stemmed in part from ignorance of the processes of ageing and the problems of the aged, in part from the generally low level of political interest in the elderly (see below) and in part from a lack of professional interest in this client group (Younghusband, 1978, vol.1, p.20 & 1978a; Stevenson et al, 1978, especially pp.369-8; Holme & Maizels, 1978, pp.142-7). This can be compared with the interest in and professionalisation of children's services. The gradual subordination of the medical model has been made possible, therefore, by the very gradual professionalisation of old people's homes' staff and to some extent by the work of social researchers in distinguishing between physical handicap and functional incapacity (cf. Townsend & Wedderburn, 1965). However, this subordination has been most noticeable only at a time when the elderly residents of homes have become so frail as to need more nursing care, despite attempts by the DHSS to separate medical and social care (DHSS, 1977a; for evidence see chapters 3 and 5 below; and see Godlove & Mann, 1980; Lawrence, 1977; Roe & Guillem, 1978; Smith, 1979).

2.2.8 The Continual Emphasis on Community Care. The concept of community care - a vague term generally intended to cover anything other than residential care, but sometimes also to include it - was proposed by the Phillips Committee (Cmd 9333) in 1954 and has been emphasised ever since. In more recent years this emphasis has been seen as a natural extension to the proposition that the client's individuality is paramount although independence has always been stressed. For example, the last major policy document from the DHSS (1978, pp.4-5) set out the government's general aims for the care of old people: "First, to ensure that retirement does not mean poverty. ... Second, ... to keep old people active and independent in their home ... (and third) old people must be able to make their own decisions about their own lives". Throughout the period the emphasis on community care has been justified (although rarely with supportive evidence) on humanitarian and organisational grounds (cf. 2.2.6 above). Community care was presented

as 'being deeply humanitarian as well as organisationally efficient"
(Macintyre, 1977, p.54). Medical and technological developments during
the period made community care, or non-residential care as we should perhaps
more pedantically call it, both more feasible and more acceptable (PSSC,
1975, paragraph 21). However, despite declared aims to allow old people
to remain as long as possible in their own homes there had apparently been
very little effective action to this end. Townsend & Wedderburn claimed
"a very wide measure of agreement about the underlying principle" of
non-residential care, and there was certainly a marked anti-institution
feeling during this period (Barton, 1959; Bowlby, 1951; Townsend, 1962).
Today, many authorities have come to realise the potential and actual
value of residential care, and academic work has tended to stress the
positive rather than the negative aspects of residential care (Tobin &
Lieberman, 1976; Plank, 1978a; reviewed in Davies & Knapp, 1981). Plank
concluded his most useful study of care services for the elderly in London
in the mid-1970s with the comments: "The reaction against institutionalisation
is, perhaps, understandable, though in my view much of it results from
bogus emotion on the part of people who should know better. ... The question
is not residential versus domiciliary care, but how much of each and of
other new forms of care, for whom, with what purpose, with what implications
for the family and in terms of social resources, how do we ensure that people
get the care most appropriate to their needs, and how do we improve the
quality of life associated with various forms of care" (Plank, 1977,
paragraph 11).

2.2.9 Ignorance, Interest and Conflict. Ignorance of the personal
social services among the general public is probably more extensive than
for any other public service, and certainly any other social service.
This ignorance stems in part from a basic lack of interest, itself
attributable to lack of experience with the personal social services for
most people, and also from a basic ignorance of aging processes and the
aged. Younger people generally hold more negative attitudes about ageing
and the aged than do the aged themselves, and certainly old age is rarely
viewed with enthusiasm (Abrams, 1978; Carter, Fifield & Shields, 1973;
Cook, 1979). Ignorance about the elderly is matched by ignorance of
services for the elderly, and this can lead to undervaluation of
residential social work and residential staff (Williams, 1967, p.18;
PSSC, 1975, paragraph 52). The general public become "aware of the

elderly chiefly when they require some help, /and/ there is a danger of equating all older people with those who need help" (Cmnd 1861, p.158). Ignorance can lead to unwanted and debilitating labelling, and can raise "fundamental impediments to communication between the providers and the potential recipients of the social work services" (Glastonbury, Burdett & Austin, 1973, p.206).

There is also a widespread confusion of local authority and voluntary old people's homes with private nursing homes, a confusion compounded by politicians and the press who use the latter term to describe the former services. The press can also be roundly criticised for the "sensational treatment often given to stories involving the personal social services, almost invariably focusing on crises or on failures of control" (PSSC, 1979, paragraph 8). An inaccurate impression of the personal social services and of the functions of old people's homes is an inevitable consequence. The NCCOP, or CPA (Centre for Policy on Ageing) as they are now called, thus deliberately set out "to educate through the dissemination of practical information" (Jefferys, 1977) and Age Concern has tried to create "an informed body of public opinion" (Age Concern, 1972). To some extent lack of interest and knowledge about the elderly can be blamed on the Ministry of Health and the DHSS. As Townsend (1962, p.7) pointed out, Annual Reports of the Ministry rarely contained more than three or four pages on residential services for the elderly and provided only bare statistical information. The picture has not changed since then, as a look at the latest Annual Report of the DHSS will confirm.

Parliamentary or political interest in the welfare services, and particularly the services for the elderly and the physically and mentally handicapped, has grown over the past thirty years, but has always been relatively low (Younghusband, 1978, vol.1, p.20). On the whole, the major political parties have reached a marked degree of consensus with regard to services for the elderly - for example, there has been considerable agreement on the principles of non-residential care (Townsend & Wedderburn, 1965) the Ten Year plans (Johnson Smith, 1965; Pavitt, 1965) and about virtually everything except contributions and charges (Houghton, 1967)[5]

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[5] See also Klein (1975, p.1) and Klein (1976, p.425) for comments on a more general consensus on social expenditure priorities and policies.

In contrast, there has often been an element of dissensus or conflict
between central and local government (see 2.2.11 below) and between
professionals and non-professionals. Nelson & Longbottom (1978) see
the latter conflict as an inevitable consequence of the fundamental
division of values and responsibilities within social services departments,
and the Williams Committee attributed it to the ignorance and under-
valuation of the services by non-professionals (Williams, 1967, p.24). In
many instances the conflicts between different hierarchical levels within
social services departments, and also between central government and the
local authorities, can be understood in terms of a conflict between the
humanitarian and the organisational perspectives or objectives.

2.2.10 Role and Effectiveness   As we saw above (2.2.8) one general
objective has tended to dominate all others in the post-war period: the
belief that old people should be able to remain in their homes for as long
as possible. This policy emphasis, and its success, will be examined in
more detail in chapter 11. For much of the period, this emphasis has
implied a negative, "residual" objective for residential care, and only in
more recent years have more positive aims emerged (and see 2.2.5 above).
Objectives such as the preference for community care have implications
for the role of residential homes in the system of care services for the
elderly.[6] The role of homes has long been a subject of some contention.
Townsend's monumental study, most of which was summarised in The Last
Refuge (1962), examined three possible roles for old people's homes. The
conventional role, as encapsulated in the relevant post-war legislation
and as exemplified by extant practice, was the home as permanent refuge.
The two alternative roles that Townsend examined and preferred were the
temporary refuge (for those temporarily ill or for those normally dependent
on otherwise permanently burdened relatives), and the rescue device role
(for those for whom adequate non-residential services are not yet provided).
Townsend's study was instrumental in changing the attitudes of a large
section of the concerned population and, whilst many of his recommendations

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[6] There are also "lower level" objectives for individual old people, emphasising
their rights to independence, privacy, and so on, which are closely related
to these more general objectives. I discuss these resident-level (and
therefore home) objectives in chapter 3.

were never taken up, the role of the old people's home as permanent refuge
was never again to be taken for granted. Interestingly,   whilst the
first edition of the Building Note 2 from the Ministry of Health (1962)
made no mention of the objectives of old people's homes, the second edition
in 1973 expressed the feeling that "The primary aim is ... to create an
atmosphere in which residents can, as an alternative to their own homes,
live as normally as possible and in which their individuality, independence
and personal dignity are respected. As a corollary, it should be the aim that
the home should form a part of the community from which residents come and
with which they can, so far as they wish, maintain their links" (DHSS,
1973, paragraph 2.1).

Today, old people's homes fill a number of roles. Harris, D. (1977)
distinguished seven different, though not alternative, roles for residential
homes, some of which are of relevance and interest here. The traditional
role is seen as "a field social workers's resource ... to be used ... when
all other attempts at problem solving, or community and family support have
failed" (ibid., p.19). Residential care is thus seen as residual care,
homes performing almost a "dustbin" role, and the dangers of negativity
of purpose are clear to see. All too often, as an illogical non sequitur,
the physical safety of residents seems to override all positive, develop-
mental objectives (PSSC, 1977, paragraph 2.2). If residential care is
not to be seen as residual care then a positive approach to care is imperative
(DHSS, 1973, paragraph 2.3; Parker, 1965, p.16; Utting, 1977, p.15;
Williams, 1967, p.27). The "dustbin" model of care can also be seen as
imposing a family substitute role for homes, residential care being for
those whose family or neighbourhood resources have failed them (cf.
Carstairs & Morrison, 1971, paragraph 7.50). The hotel role for homes,
originally in the minds of policy makers in 1948, saw residents as largely
independent but nevertheless having many self-care tasks, such as shopping
and cooking, provided for them by staff.[7] Residents today, whilst more
frail and incapacitated than the residents of 1948, are increasingly being
encouraged to undertake more self-care tasks themselves (see chapter 5).
A further role for the old people's home is as a community resource, where

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[7] This is a different interpretation of the "hotel model" of care from that
given by Harris (1977) and is more consistent with the use of the term in
this thesis and by Bevan.

day care and meals services are provided for non-residents. Such a combination can clearly be justified on the organisational grounds of economy (but generally has not been) and, more controversially perhaps, on the humanitarian grounds of allowing residents to maintain links outside the home and interact with non-residents (but it would now seem that this is not an altogether desirable policy - see chapter 5). Finally, the home can be viewed as a <u>therapeutic community</u> where, for example, residents have responsibilities for services in the home in much the same way as do staff.

There has, however, been a marked change towards the end of the period from concern over the <u>roles</u> of homes, and personal social services generally, to a concern about <u>effectiveness</u>. This has particularly been a feature of the 1970s (Davies, 1977), as a comparison of the methodologies and findings of Townsend & Wedderburn (1965) and Hunt (1978) has recently revealed (Bebbington, 1979). Once again, this reorientation towards effectiveness can be understood in terms of the ebb and flow of humanitarian and organisational concerns. In the early 1960s, when Townsend and Wedderburn were collecting and collating their survey evidence, many of the organisational concerns were couched in the arguments of the humanitarian perspective. As Macintyre (1977, p.59) argues: "Policies designed from an organisational perspective may be presented in humanitarian terms in the hope that this will render them more acceptable. Such a humanitarian rhetoric may mask underlying definitions of the problem and recipes for action which are fundamentally organisational in nature". By 1978, the realities of economic recession made it quite legitimate to emphasise the organisational concern about service effectiveness. The DHSS discussion document, <u>A Happier Old Age</u>, was thus able to argue that: "It is clearly in the interests of all of us that in providing for elderly people we get the best value for the money expended" (DHSS, 1978, paragraph 8.6). It is certainly possible to distinguish periods when the humanitarian concern dominated the organisational, or vice versa, but often that dominance reflected more the underlying fashions in social policy writing and thinking than, for example, the concern of government or the general public.

2.2.11 Central-Local Relations[8]   Central government exercises control

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[8] This subsection more than any other deserves and needs a thesis in its own right. My comments here can only be brief and have drawn, in particular, on Davies (1968), Griffith (1966), Judge (1978), and the Layfield Committee Report (Cmnd 6453).

over local authorities' personal social services policies in a number of ways. The mode of control favoured or emphasised at a particular time has largely been determined by the prevailing ideologies of the government of the day. Labour governments have tended to favour centralisation of control - an ideology enshrined, for example, in the important role assigned to the Ministry of Health in the National Health Service and National Assistance Acts, whereas Conservative governments have preferred local autonomy and decision making.[9] As well as these underlying ideologies, the mode and degree of control has been influenced at various times by the Local Government Manpower Committee, whose recommendations the Ministry of Health seemed to take more seriously than other Ministries (Griffith, 1966, p.517), by the reliance on monetary as opposed to fiscal policy as the major tool of macro-economic control, and by the general character of public expenditure as reflected, for example, in the Public Expenditure Survey. The most important modes of central control are through legislation, circulars and similar exhortations, the rate support grant, capital loan sanctions, general inspection, and charging controls. I briefly describe each in turn.[10]

(a) Relationships between central and local government are most clearly governed by White Papers and Acts of Parliament. Within the general statutes of the law there is considerable scope for Ministerial control, despite the fact that the National Assistance Act gave powers and duties directly to local authorities (Parker, 1965, p.161).

(b) Indirect control is exercised through circulars, guidelines, norms and priority statements. Circulars tend to be "rather diffident in style" (Griffith, 1966, p.55), generally only "invite" the cooperation of local authorities, and in all respects well exemplify the generally persmissive nature of control favoured by the Ministry of Health and the DHSS. Judge (1978, p.23) found that circulars today were much as Griffith described them, if perhaps a little more detailed. Two other popular modes of policy exhortation have been the Priorities documents and the ten- and three-year plans. The Plowden Report (Cmnd 1432) emphasised the need for long-range planning and established the PESC system of expenditure control. In

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[9] The first Conservative government since the planning of the National Assistance Act - Macmillan's government of 1951 - moved back to local autonomy, but this was as much a reaction to excessive bureaucracy as a response to ideology.

[10] My comments here are confined to central government "control" of the personal social services only, not of local authority activity and expenditure in general. The recent volumes edited by Booth (1979) and Wright (1980) include papers which discuss some more general, recent influences and controls.

response, the Ministry of Health asked local authorities to draw up ten-year plans in 1962 and published them a year later (Cmnd 1973). Despite this initiative by central government, the emphasis was still on local autonomy.[11] When revisions of these plans were published in 1964 (Ministry of Health, 1964) and 1966 (Cmnd 3022), local autonomy was reiterated, and substandard authorities were not required to raise their standards. A further set of ten-year plans was requested in 1972 by the then-Minister, Keith Joseph, but were not very successful. Authorities were still disorganised after the Seebohm changes, and facing local government reorganisation, were asked for information which was unlikely to be readily available in their files and were given very little time to provide it, were not really in a position to make such long-term forecasts, particularly with the population data then available, and were asked to assume a clearly unrealistic real growth rate of 10% per annum in drawing up their plans (Webb & Falk, 1974; Booth, 1977; Falk & Lee, 1978, chapter 7). Basic economic assumptions regarding patterns of substitution and complementarity were also to be ignored (Sumner & Smith, 1969, p.118; Judge, 1978, p.159). This round of plans did manage to shift resources from residential to non-residential services, however. In 1977, a new round of three-year plans was requested, and the Local Authority Planning Statements (LAPS) were published a year later (DHSS, 1978a). The LAPS exercise suffered the same basic deficiencies as the ten-year planning exercises,[12] but on the whole is reckoned to be a much more reliable and useful planning process and informal mode of control, particularly as it ties in with the three year periods covered by priorities consultative documents (DHSS, 1976b & 1977) and NHS planning and links its data requirements to the returns already requested annually by DHSS. The most recently acquired weapon in the exhortation

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[11] "The purpose is ... neither to lay down a standard pattern nor to state principles and objectives dogmatically. Rather ... to stimulate discussion, study and experiment ..." (Cmnd 1973, p.iii).

[12] Authorities were given insufficient time to complete the first round of plans; the plans suffer from "narrow departmentalism" and thus do not encourage inter-departmental cooperation within local authorities; they are too closely linked to national fortunes and macroeconomic fluctuations; and the requested narratives are too unreliable (Booth, 1977).

armoury is the Priorities document, which attempts to impose national plans upon local policies, albeit in a rather round about fashion. Despite their vagueness, their over-optimistic public expenditure projections, and their discouragement of capital investment, Judge (1978, p.27) feels these documents "will have a continuing and significant influence on the local determination of priorities over the next few years".

(c) The other indirect mode of control is through the employment of central and regional inspectors. The inspectorate has actually been used very little with respect to services for the elderly (initially to break from the disliked Poor Law inspectorate, but more recently to preserve local autonomy), and declined at precisely the time that the inspectorate for children's services was growing in importance (Davies, 1968, p.88; Klein & Hall, 1974). Powers of inspection currently rest with the Social Work Service of the DHSS, whose role was set out in Circular 22/71. On the whole, the Service "keeps a watchful eye, mainly informally, on the practices and progress" of local authorities (Klein & Hall, 1974, p.12), and advises, rather than insists, on policy. The Personal Social Services Council (1972-80) temporarily performed advisory, research, and developmental services until its recent demise.

(d) Perhaps the most complex of the central-local relationships is the allocation of revenue grants through the rate support grant (RSG). Currently the RSG provides just under two thirds of local expenditure, and has three elements: the domestic (a direct subsidy to domestic rate-payers), resources (to compensate for variations in rateable value), and needs elements (to compensate for variations in needs-related expenditures). The RSG replaced a number of specific grants in 1959 to allow local authorities greater freedom in policy formation, although it is doubtful whether it has been particularly successful in promoting effectiveness in meeting need or in influencing policies at the level of individual services (Davies, 1976).

(e) The administration of local capital expenditure by the DHSS is arguably the most direct and most important mode of effective central control. The withholding of recommendations for loan sanctions were felt by Griffith (1966, p.491) to be "virtually the only genuine form of statutory control", and in most years loan sanction applications greatly exceeded the amount granted. Local authorities account for almost all personal

social services capital expenditures, but the size and distribution of investment is the domain of the DHSS (after the annual PESC report, and amended within the continuous dialogue between the DHSS, the Treasury and the Cabinet). Policy objectives, building standards and the total resource constraint all play their part in determining the distribution between authorities. Because there are very few opportunities for financing major investments from revenue, because revenue contributions to capital outlay are often felt to be unfair to other services, and because authorities are under a moral obligation to keep their capital expenditure in line with general economic policy, the importance of loan sanctions is clear to see. Loan sanctions from the Ministry have always been required, although the general system of control has changed somewhat in the post-war period (see Davies, 1968, pp.99-104; Sumner & Smith, 1969, p.253). Generally, Ministerial control has been relaxed somewhat, but is still tighter than any other mode of control. This has created a distortionary bias in favour of capital rather than revenue expenditure (Cmnd 6453, p.242), or contrariwise has discouraged capital expenditure more than revenue expenditure (Davies, 1968, p.103); has often delayed decisions until they are too late (Judge, 1978, chapter 3; Sumner & Smith, 1969, p.254); is too volatile and unpredictable because of its close linkages with macroeconomic policy instruments; and is really rather a blunt instrument which fails to match the intricacies of reality (Griffith, 1966).

(f) Finally, central control can be exercised through controlling and guiding the use of consumer charges. In some local authorities, charges contribute one fifth of personal social services' finance (Judge, 1978) and embody a number of central government objectives (Parker, 1975; Judge & Matthews, 1980). These objectives include the raising of revenue, the reduction of demand, the shifting of priorities, the prevention of abuse, and reduction of stigma. Charges for accommodation in old people's homes were certainly introduced and have been maintained for the symbolic reason of reducing or removing the stigma that might otherwise accompany the receipt of "charity". This was particularly important to mark a break from the principles and stigmas of the Poor Law. Minimum charges were set in the National Assistance Act of 1948, and have been revised almost annually thereafter (see thesis below). On the whole, local authorities have had very little freedom in this area of policy, in contrast to the charging strategies allowed for other personal social services,

including domiciliary services for the elderly.

It is clear, therefore, that DHSS control has in almost all major respects been permissive rather than mandatory, with advice and exhortation being preferred to insistence. Wide variations in the inheritance of trained manpower and good quality capital resources in 1948 almost immediately dictated a fairly informal mode of control, and continuing variations in voluntary and private provision, and in local conditions generally, have continued to work against the imposition of national standards. Of course, it is precisely such variations which have kindled arguments for more central control: "The discretionary nature of the great bulk of legislation affecting the personal social services has led to a service which varies greatly from one authority to another in quality, extent, and focus" (PSSC, 1979, paragraph 13). Ministry officials seem always to have maintained, however, that the welfare services "are, after all, local authority services" (Griffith, 1966, p.490; and see Cmnd 1973, paragraph 4; and Expenditure Committee, 1971-72, paragraph 21), and preferred to bow to the greater experience and professional nous of the chief officers (Griffith, 1966, p.492-6). More recently, of course, less reliance has been placed on informal, exhortative devices. This reflects not only an inevitable consequence of the increasing importance being attached to personal social services, and particularly services for the elderly (cf. Parker, 1965, p.178), but also the necessities of careful economic management in times of economic recession or depression. I would argue that despite the new Conservative emphasis on the importance of local responsibility, central control over local authority social services departments is tighter than at any time since 1948.

2.3 Policy Constraints and Influences

Ideologies and attitudes are rarely translated directly into policy or maintained for any reasonable length of time without alteration. These ideologies are themselves subject to variation and influence. The rest of this chapter is therefore devoted to a consideration of the more important influential factors. In order of appearance these are: demography, incapacity, social factors, developments in other services, economic factors, demand (as opposed to need), information and evaluation, and political influences.

2.3.1 Demography   One of the most important factors shaping the post-war development of care services for the elderly, and certainly the development in future years, has been the changing demographic pattern. No major (or minor) policy document fails to mention these demographic trends and projections, and virtually every Ministry of Health and DHSS Annual Report since the war has commented on them. The basic demographic data are given in table 2.1. A number of trends are immediately obvious: the number of elderly people, and particularly the number of the very elderly

Table 2.1: Population of England & Wales, 1951-78

Mid-year values of:	1951	1961	1966	1971	1976	1978
Total population (000)	43815	46196	47824	48854	49142	49117
- percentage of whom male	48.0	48.4	48.5	48.6	48.7	48.7
- percentage aged 60-64	4.9	5.3	5.7	5.8	5.6	5.2
- percentage aged 65-69	4.2	4.3	4.5	4.9	5.1	5.1
- percentage aged 70-74	3.2	3.3	3.4	3.7	4.1	4.2
- percentage aged 75-84	3.1	3.6	3.7	3.9	4.2	4.5
- percentage aged 85 & over	0.5	0.7	0.7	0.9	1.0	1.0
Percentage of aged 65-74 male	42.1	40.3	40.7	42.1	43.1	43.3
Percentage of aged 75-84 male	39.3	35.5	33.8	33.1	33.0	33.5
Percentage of aged 85+ male	30.3	29.8	28.0	25.8	24.6	24.4

Source: Population Trends, no. 17, Autumn 1979.

(the "old old"), is growing both absolutely and relatively to the total population; the proportion of males in the elderly population is steadily increasing and will continue to do so, and again much faster than the population as a whole. More people are living longer because of improved health services, better housing, and improved social conditions generally (DHSS, 1978, p.4). The projected demographic trends from 1978 indicate a continuing pattern of this kind, and given the insensitivity of projections for the elderly to the errors normally troubling demographic forecasts (Davis, 1976), these figures are likely to be fairly accurate. We can thus be "reasonably sure that, while the total population over retirement age in 1991 will be only about 500,000 higher than it was in 1974, this will comprise a fall of some 250,000 in the numbers aged under 75 years of age and an increase of 750,000 in people aged over 75" (ibid., p.10). Of course, demographic figures alone are not enough to measure need (Davies et al, 1971, p.14; Donaldson, Clayton & Clarke, 1980; McCreadie, 1975, p.1; Macintyre, 1977, p.43; Williams, 1967, p.109), but the demographic structure is felt to have an impact on attitude and on the amount of care available from (elderly) children (Bosanquet, 1978, p.7; Brearley, 1977, p.12).

2.3.2 Incapacity   Incapacity for self-care is one of the most important
determinants of the need for care and has increased markedly since 1948,
due to the advancing age of the population and the average level of
incapacity of each elderly person. The latter is directly attributable to
the medical advances of the last hundred years. The survival of the "old
old" in greater numbers, and with greater infirmity and incapacity, has had
a marked influence on the development of care services in the last thirty
years. While there are no time-series data on incapacity, nor are the
major national cross-section surveys strictly comparable, we may draw
inferences from the figures about changing incapacity levels. Townsend's
research, conducted in 1962, used an incapacity scale based on an individual's
ability to perform six tasks without assistance, ranging from 0 (no
incapacity for self care) to 12 (complete incapacity).[14] Bebbington (1979)
applied Townsend's incapacity scale to the survey evidence collected by Hunt
and was thus able to make some suggestive comparisons between 1962 and 1976.
Defining severe incapacity as a score of between 7 and 12 (inclusive),
Bebbington found that among the "old old" (aged 75 and over) many more are
now incapacitated (table 2.2). The conventionally assumed age-gradient of

Table 2.2: Incapacity of the General Elderly Population, 1962 & 1976, by Age

	Age 65-69		Age 70-74		Age 75-79		Age 80+	
	1962	1976	1962	1976	1962	1976	1962	1976
No incapacity	71%	67%	55%	53%	47%	33%	27%	21%
Severe incapacity	2%	3%	5%	8%	8%	14%	15%	23%

Sources: Shanas et al, 1966, table II-10; Hunt, 1978 ; Bebbington, 1979 .

incapacity is also clearly indicated. Similar age-gradients have been reported
on many other occasions, and the General Household Survey now allows regular
comparisons to be made. We shall also see, in chapter 3, that incapacity
and age are positively associated among the elderly in residential homes.
For the sample of elderly in the community as a whole, that is all people
aged 65 or over and living in their own homes, there has been a marked
increase in the number of moderately incapacitated but only a marginal
change in the number of severely incapacitated (table 2.3). The number

[14] The tasks were: walk outdoors, walk indoors, negotiate stairs, wash
down or bath, dress, and cut toenails. Scores of 2 (task cannot be
performed), 1 (only with difficulty), or 0 (can be performed) were
assigned to each task.

of bedfast elderly[15] in the community has fallen as a result of the inter-
vention of the personal social services.   The final column of table 2.3
gives the percentages for the population of old people's homes in 1962,

Table 2.3:   Degree of Incapacity, 1962 & 1976

	1962	1976	1962(OPH)
No or slight incapacity (scores 0-2)	76.1%	69.9%	27.1%
Moderate incapacity (scores 3-6)	14.8%	20.6%	20.3%
Severe incapacity (scores 7-12)	7.0%	8.7%	26.7%
Bedfast	2.1%	0.8%	25.9%

Sources: Townsend & Wedderburn (1965); Hunt (1978) as amended and computed
           by Bebbington (1979, table 5).

computed by Townsend & Wedderburn (1965).   Similar comparisons have been
made for a number of individual local authorities since that time and we
return to examine some of these in chapter 11.

2.3.3 Social Factors   The elderly are becoming increasingly separated
from the rest of society - family ties have weakened, employment opportunities
are fewer, ill health is more common because of the higher survival rates,
and living standards have probably not narrowed.   These and other social
factors have all contributed to a marked increase in the need for social care
among the elderly during the last thirty years.

One of the most frequently researched social factors is isolation, and
this factor has become increasingly important in the measurement of need,
although its importance has never really been in doubt (see the comments
from the Association of Metropolitan Counties in 1949 quoted by Parker, 1965,
p.122; Cmnd 3703, paragraph 297; Bebbington & Davies, 1980a).   The difficulty
has not been deciding the importance of living alone as an indicator
of need, but measuring the extent of the problem.[16]   Pulling together
information collected in the 1951 and 1971 Population Censuses and the General

[15] Throughout this thesis, the term "elderly" means aged 65 or over,
unless stated to the contrary.

[16] Early evidence comes from Rowntree (1947) who conducted a survey in
York during 1935-36.   He found that 5.5% of old men and 14% of old women live
alone.   He also found, however, marked variations across the country;
for example, the percentage of old men living alone ranged from 1% in
Mid-Rhondda to 18% in Wandsworth & St. Pancras (ibid., p.6).

Household Survey of 1977 we can clearly see the trends in isolation among the elderly (table 2.4). A similar comparison was made by Bebbington (1979) from the sample surveys of Townsend and Hunt and similar figures were obtained. 22.8% of all elderly people (and 25% of those aged 80 and over) lived alone in 1962, as compared with 29.6% (41%) in 1976, and these changes occurred despite the increased provision of residential care for these kinds of elderly people (see chapter 3). The position today is that roughly

Table 2.4: Elderly Living Alone, Great Britain, 1951, 1971 & 1977

	1951	1971	1977
Percentage of men, aged 65-74, living alone	6.5	10.9	12.0
Percentage of men, aged 75 and over, living alone	10.5	17.7	22.7
Percentage of women, aged 65-74, living alone	15.6	27.0	37.0
Percentage of women, aged 75 and over, living alone	23.1	37.5	52.2

Sources: Population Censuses 1951 & 1971 (reported by Bosanquet, 1978) and General Household Survey, 1977 (reported in Social Trends 1979, p.63).

41% of the elderly live with their spouse in a two-person household, 12% live with their children, 13% live in other types of household with at least one other person, 6% live in residential or hospital accommodation, and 28% live alone. (Figures for 1976 computed from Hunt, 1978, and reported by DHSS, 1978, p.9). Of course, many elderly people are not only isolated but materially handicapped. Evans (1977) used data collected from the General Household Survey of 1971-72 to illustrate the correlation between living alone and poor housing; for example , 17.3% of the elderly living alone had no bath or shower, and 15.1% had no indoor toilet. These figures compared with 12.3% and 13.7%, respectively for the elderly not living alone, and 5.5% and 6.7% for the rest of the population. Wroe (1973) gives figures which confirm these differences in housing standards.

Many elderly people living alone have children, other relatives or neighbours living nearby and willing to support them through short-term or long-term crises. Once again, the importance of such "informal support", as it is now termed, has long been recognised (Sheldon, 1948; Townsend, 1959) but was not quantified nationally until Townsend's 1962 survey revealed that 3% of community-residing elderly had no living relatives, and 16% had not seen a relative in the previous week (Shanas et al, 1966, table IX-1). The comparable percentages from Hunt's (1978) survey fourteen years later were 5% and 29%. A number of reaons can be posited for this reduction in family contact during the post-war period. One of the most important has

been the increasing tendency for younger adults to move away from the area
in which they grew up. Improved communications, increased prosperity,
higher marriage rates (and a younger average age of marriage coupled with
more common law marriages), and a greater availability of houses have
all combined to enable young people to move into new homes of their own.
These new homes are often too small to accommodate an extra person and
often located on new housing estates too distant from older residential
areas to allow frequent contact between children and ageing parents (DHSS,
1976b, paragraph 5.2; Hunt, 1977; Paige & Jones, 1966, p.96; Williams, 1967,
pp.112-113, Willmott, 1963). Not only are more younger adults moving,
but there is also a tendency for more elderly people to move to the seaside
and other retirement areas, although many later move back to their children
after bereavement (Willmott, 1976, p.56).

Even without this increased mobility, the amount of family contact
would probably have decreased simply because average family size has been
steadily falling. Evans (1977) gives the following figures for family
size trends:

Year of birth of parent	1841	1881	1891	1901	1911	1921
Average number of children	4.8	4.1	3.3	2.6	2.2	2.0
Average number of children surviving to age 45	2.7	2.5	2.2	2.0	1.7	1.6

Clearly, "the average number of potentially dutiful middle-aged children
available to give support to elderly parents fell by 19%" between the wars
(ibid., p.132). Moroney (1976, p.22) conducted a similar exercise, although
he looked not at the number of middle-aged children, but at the total number
of women aged 45-49, and single women of the same age, (the so-called
"caretaker pool").

Year	1901	1911	1921	1931	1951	1961	1971
No. women aged 45-49 per 1000 elderly	830	830	840	810	640	610	490
No. single women aged 45-49 per 1000 elderly	130	160	160	160	110	90	50

"The need for help is greatly dependent on family circumstances, chiefly
marital status and the availability of help from children" (Paige & Jones,
p.93) and these trends in family size have long been cited as evidence
for greater welfare provision (Boucher, 1957, p.5; Townsend, 1957; Townsend,
1962: Beckerman et al, 1965; Townsend & Wedderburn, 1965; Shanas et al, 1966;

Williams, 1967; Hunt, 1978; Bebbington, 1979). Townsend & Wedderburn in
fact compared the institutional (old people's homes, hospitals, and nursing
homes) and non-institutional populations in 1962-63 and found that 33%
of the institutional population and 10% of the non-institutional population
were unmarried, 26% and 16%, respectively, were married or widowed but
childless, and 39% and 26% respectively, were married or widowed with only
one child. Additionally, 40% of the institutional sample, as compared
with only 22% of the private household sample, had no surviving brothers or
sisters.

Increased geographical mobility, higher marriage rates, smaller families
and general demographic changes have all combined to reduce the amount of
informal support for the elderly in the community. One further important
trend should be mentioned - the increasing economic activity rate among
women (without a corresponding decrease in the rate for men). Greater
economic equality, the development of more effective methods of birth
control, the increased demand for labour and particularly part-time labour,
and changing social attitudes and legislation have all been associated
with higher female activity rates in the labour market.[17] Actual activity
rates in the post-war years for married and non-married women, by age group,
are given in table 2.5. For married women, activity rates for all age

Table 2.5: Activity Rates for Women, by Marital Status & Age, 1951-1976.

	Married Women				Unmarried Women			
	20-24	25-44	45-64	Total	20-24	25-44	45-64	Total
1951	36.5	25.1	21.5	21.7	91.0	81.2	61.2	55.0
1961	41.3	33.1	32.6	29.7	89.4	84.8	70.5	50.6
1971	45.7	46.4	53.4	42.2	81.2	80.4	73.4	43.7
1976	54.6	56.3	61.3	49.0	76.7	79.0	72.9	41.6

Source: Social Trends 1979, p.84

groups have increased steadily throughout the period, whereas those for all
but one group of unmarried women have fallen. Working women have less
time to care for dependent parents, particularly if they seek fulfilment
from their own careers (Boucher, 1957; Moroney, 1976, p.21; Willmott, 1976,
p.56). A cross-section quantitative analysis of the demand for nursing
home care in the United States confirmed just this proposition: the higher

[17] This is not to suggest any particular causal direction for these association
given the difficulties of identification and the general lack of evidence
(cf. Bruegel, 1979; Greenhalgh, 1977).

the proportion of married women in the labour force the greater the demand
for care (Chiswick, 1976).

2.3.4   Developments in Substitute and Complementary Services   If loneliness
and poor standards of housing are two of the most pressing reasons for
admission to residential care, then why not improve the range and extent of
domiciliary care to alleviate the problem? This question, and a hundred
variants of it, has been posed probably more than any other in the post-
war period. It is obvious that domiciliary, day and meal services, hospital
and home nursing services, and special housing accommodation are all, to
some extent, substitutes for residential accommodation for some elderly
people. The extent of substitutability, I would submit, has frequently
been over-stated. For a large number of the elderly clients of social
services departments, there are very few alternative services. This
question of "alternatives" is taken up again in chapter 11. As the Seebohm
Report explained: "Any comprehensive plan to meet the needs of the elderly
must take account of the services provided by voluntary organisations, the
housing and health departments, the Ministry of Social Security, general
practitioners and hospitals as well as those of the social service
department. Such a plan must pay great attention to the contribution to
the care of old people which is, or could be made by relatives, friends and
the wider community" (Cmnd 3703, paragraph 294). There have been a
number of developments in the post-war period which should therefore be
considered if we are to understand the developments in residential care
of the elderly. A fairly brief "consideration" is therefore undertaken
in this section,[18] although the available data tend to restrict the
discussion somewhat.[19] What we would ideally need in order to examine

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[18] A comprehensive review of these trends and developments in other services
is outside the scope of this thesis. Searching the literature revealed
numerous "classifications" of services for the elderly (an interesting
recent contribution coming from Golant and McCaslin, 1979), but very
few studies of the extent of substitution between them. Exceptions are
the studies by Davies (1968), Davies et al (1971) and Bebbington & Davies
(1980a) in Britain, and Chiswick (1976) in the United States. This
thesis also neglects private provision, such as paid domestic service.

[19] Unless stated to the contrary, figures reported in this section are
taken or computed from the Annual Reports of the Ministry of Health and
the DHSS, or related publications.

the substitutability of services for the elderly are measures of the outputs and inputs of all relevant services, but then that is exactly the problem which forms the basis of this thesis!

(a) Domiciliary Services. It is widely held that the post-war expansion and improvement of domiciliary services have delayed entry into residential care, or obviated the need for it altogether, for a large number of people (e.g., see Challis & Davies, 1980; DHSS, 1976b, p.40; NOPWC, 1961, p.71; Sumner & Smith, 1969, p.118; Williams, 1967, p.111; and virtually every Ministry of Health Annual Report between 1952 and 1962). As a result, old people entering residential care have been more frail, incapacitated and dependent. Whilst domiciliary care may delay residential care, and thus contribute importantly to the overall efficiency of the system of care, it would be wrong to see it as an alternative to residential care: "Traditional domiciliary services do not meet some of the needs amongst elderly people which may be associated with admission to residential care, /particularly/ isolation and loneliness, feelings of loss and rejection associated with loss of relationships and functions, feelings of pointless-ness and the general loss of the social world which made life meaningful previously" (Plank, 1978, paragraph 4). Domiciliary services for the elderly have expanded considerably since 1948, and have changed in a number of other respects. The total number of cases (households)[20] receiving home help in England and Wales grew from 139,816 in 1949 to 690,478 in 1976, and the proportion receiving the service because of old age increased from 57.6% in 1953 to 77.6% in 1962, and from 75.1% in 1963 to 87.4% in 1976.[21] The number of households receiving the service because of old age per 1000 persons aged 65 or over has correspondingly risen from 55.4 in 1966 (England & Wales) to 86.9 (England) and 81.6 (Wales) in 1976. The number of elderly people who cannot perform certain self-care tasks, but who are in receipt of domiciliary services provided by a local authority, has grown from 7% in 1962 to 9% in 1976 for those incapable of bathing, from 8% in 1962 for heavy housework to 21% in 1976 for washing floors; and from 4% in 1962 for preparing meals to 9% in 1976 for cooking a main meal (Bebbington, 1979, tables 11-13). However, elderly clients of the home help service are visited less often and receive

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[20] A household can clearly have more than one person.

[21] Actually because of "old age and chronic sickness" until 1962, and because of "old age" (only) from 1963 onwards.

fewer hours of service per week (ibid., table 8). Further discussion of domiciliary services is given in chapter 11.

(b) Meals Services. Local authorities have not been providing meals services for all that long, but there is a fairly long history of voluntary provision. The Annual Report of the Ministry of Health for 1952 commented on the initiative of Preston Corporation "to provide ... a meals service for old people, whether in their own homes or in centres provided for the purpose. It will be interesting to observe how this social experiment develops" (Cmd 8933, p.120). The "social experiment" in fact developed to such an extent that today all local authorities provide a meals service, and together supplied over 40 million meals in 1976. Approximately 60% of these meals were provided in recipients' own homes. Luncheon clubs were started in the North of England in 1956, often set up by meals organisers, and because of reduced transport-costs for the provider could be supplied at a "moderate" price (Cmnd 293, pp.131-2). By 1960 the Ministry of Health felt the meals service was "an admirable social service, but ... the existing provision does not meet all the needs" (Cmnd 1418, p.124), and in 1962 the National Assistance Act 1948 (Amendment) Act gave local authorities power to provide meals and recreation for old people either directly or through voluntary agencies. The service expanded thereafter, although still mainly provided by voluntary organisations, the most important of which was the Women's Voluntary Service. For example, the number of meals supplied by the WVS increased from 2.76 million in 1961 to 9.8 million in 1968, and the number of recipients doubled between 1962 and 1966 alone. As well as these general increases in numbers of meals and recipients, the Ministry of Health sought to persuade local authorities and voluntary providers to serve meals on more days of the week, if necessary to a smaller number of clients.[22] In 1967, when the first national collection of data on meals services was conducted by the Ministry it was found that about 13% of clients received one meal per week, and 0.5% received seven meals per week. By 1976 the percentages were 7.6% and 2.9% respectively. Over the same period, the number of recipients virtually doubled;

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[22] See, for example, Cmnd 293, pp.131-2; Cmnd 2062, p.81; Cmnd 2688, p.25; Cmnd 3039, p.30.

the average number of meals per client, served in clients' own homes, increased from 3.8 to 5.0 per week; and the proportion of meals served in luncheon clubs, day centres, etc. increased from 33% of the total to 40%. Bebbington (1979) has calculated that the proportion of old people receiving meals at least once a week has risen from 1.1% in 1962 (Townsend & Wedderburn, 1965) to 2.4% in 1976 (Hunt, 1978).

(c) Day Care Services. Some commentators have recognised day care services as an alternative to residential care for some old people, but the rider attached to this statement by the Williams Committee "all those using these day centres return to their families for the night" (Williams, 1967, p.111) - makes plain the limitations of these services, particularly in view of the isolation of so many elderly people (section 2.3.3). Paige & Jones (1966, p.96) had this in mind when they wrote that increased day care provision would not reduce the need for residential care. The provision of day care services has primarily been the responsibility of voluntary organisations, with the increasing support of local authorities. There were already more than 3500 day clubs by 1953 (Cmd 9321, p.187) and over 5000 by 1956 (Cmnd 293, p.131). Subsequent Ministry of Health Annual Reports noted the growing number of social centres and clubs, nearly all of them run by voluntary bodies.[23] The 1962 Report noted the experimental planning of clubs and meal centres in conjunction with new residential homes (Cmnd 2062, p.82); by 1965 there were also over 100 local authority day centres catering "primarily for frail elderly people, who are often housebound or isolated. ... Special transport ... may be necessary" (Cmnd 3039, p.30). Nevertheless these centres and clubs were still generally staffed by volunteers. Since then the number and variety of day care provision have both increased. Bebbington (1979) notes how 7% of the elderly "visited an old people's club last week" in 1962, as compared with 12% who visited social centres at least once a week in 1976. Evidence of the variety of day care provision is provided by Carter's (1979) monumental study.

(d) Hospital Services. Probably the closest substitute to residential care for the majority of elderly residents is the hospital geriatric ward, and certainly some of the most difficult allocation decisions in the post-war period have been between health and welfare authorities. The

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[23] In Essex, for example, the number of all-day centres had increased from 0 in 1948 to 27 in 1959, and the number of clubs had increased from 50 to over 300 (Cmnd 1086, p.193).

difficulties originated with the National Assistance Act itself, which
attempted to draw the subtle distinction between those "in need of care and
attention" from the Welfare authorities and those who were "sick" and hence
in need of health care. In principle, substitutability of health and
welfare services gives the care system considerable flexibility, but in
practice this distinction has been an uneasy one (Townsend, 1962; Sumner
& Smith, 1969, p.120; Davies, 1969, pp.67 & 98; DHSS, 1978a; Booth, 1978;
Godlove & Mann, 1980). Local authorities have complained of the burden
placed upon them by hospital authorities' policies of discharging too many
of the frail and infirm elderly and of admitting too few; health
authorities complained that a large number of old people referred to them
were in need of care and not treatment. "No geriatric service can be
really effective unless it is run as a safety valve for a service mainly
of home care" (Cmnd 1207, p.251). "Bed-blocking" by the elderly was a
frequent complaint of the period. For example, geriatric physicians were
reported as estimating that as many as 25% of their geriatric patients in
1953 should be discharged to suitable welfare accommodation, and a similar
proportion of the 9700 people on the waiting list were not suitable for
hospital admission (Cmd 9307, p.195). Unfortunately, many geriatric
patients did not want to be discharged and younger relatives were reluctant
to accept them into their own homes (Cmd 9627, p.199). Generally, health
authorities were adopting an increasingly rigorous definition of "sickness"
(Davies, 1968, p.67) and were moving away from long term custodial care
wherever possible. The senile demented were also much less likely to be
hospitalised as the period progressed (Jolley, 1977; Shulman & Arie, 1978).
This changing definition of "sickness", coupled with advances in medicine
and general hospital treatment, and with the development of more and
better domiciliary health services, allowed earlier discharge from hospital.
Most geriatric units "aim at the rehabilitation of old people to make them
fit for discharge to live in the community again" (Cmd 9321, p.28) and
the average length of stay has progressively fallen over the period.[24]
Another important trend over the period was the development of geriatrics
as a separate and important specialty. The founding of the Medical Society

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[24] The average duration of stay in geriatric and chronic sick wards in 1956
was 163.1 days, as compared with 113 days for geriatric wards (only) in
1971, and 84.6 days in 1976.

for the Care of the Aged in 1947 was followed by official recognition of the need for separate geriatric treatment units with the issue of a memorandum from the Ministry in May 1950 (Felstein, 1969; Macintyre, 1977). Thereafter, the number of geriatric beds in hospitals grew, at a time when the total number of beds was falling. Between 1949 and 1958 the rate of growth (of geriatric and chronic sick beds[25]) was low, at 13% (as compared with 62% for local authority residential accommodation),[26] but from 1958 the number of available geriatric beds grew from 15179 (1958, England & Wales) to 33209 (1967, England & Wales) to 55700 (1976, England only). Occupancy rates stayed roughly the same throughout the period. Geriatric medicine developed throughout the period with a continued emphasis on rehabilitation (Ministry of Health, 1967, p.158, & 1968, p.146; Cmnd 5700, p.44). Even in periods of general cutback in capital expenditure, there was no reduction in the allocation to geriatric services (Cmnd 6150, p.62) and this amounted to 8.6% of the total health service allocation in 1977/78 (Cmnd 7394, p.39).

(e) Day Hospitals. A dramatic increase in outpatient treatment was an almost inevitable consequence of the decision by hospital authorities to stop the long term custodial care of individuals who were not really "sick". The Ministry of Health recorded a marked increase in the number of outpatients in 1953 (Cmd 9321, p.28) and in the same year announced that special geriatric outpatient clinics were being set up within existing hospitals (Cmd 9307, p.196). The first purpose-built day hospital was opened in Oxford in 1958, although there were by then a few converted premises in use as day hospitals (Farmdale, 1958). Only after a few years, however, did these day hospitals move from a preoccupation with psychiatry to geriatrics (Brocklehurst, 1979). By 1977 there were 303 day hospitals in the United Kingdom, and a comprehensive survey by Brocklehurst & Tucker (1979) revealed that 28% had been opened in the 1960s, 41% between 1970 and 1975, and 30% in 1976 and 1977. Out-patient or day hospital care

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[25] Geriatric beds were not distinguished separately until 1958 (- itself an indication of the development of this specialty -) although in 1953 people of pensionable age occupied approximately 90% of chronic sick beds, and an additional 7% were empty because of staff shortages (Cmd 9307, p.195).

[26] In the same period the number of people aged 65 or over rose by 16% and the number aged 75 or over by 27%. Figures from Davies et al, 1971, p. 14.

has certainly been the fastest growing geriatric service (Cmnd 5352, p.50).
In 1949 English and Welsh hospitals recorded 6908 geriatrics and chronic
sick attendances, and 41,500 in 1958, of which 37,400 were geriatric
cases. The number of attendances had reached 113,000 by 1967. In England
alone the number of geriatric attendances rose from 51,000 in 1959 to
212,000 in 1976, an increase of 316%. Over the same period the number of
new geriatric outpatients increased by 288% from 9000 to 35,000, as compared
with an increase of only 9% in the total number of new outpatients. Whilst
a fast growing service, day hospitals or outpatient care can only provide
for a very small proportion of the elderly.

(f) Domiciliary Health Services. The same cannot be said for
domiciliary health services- mainly comprising home nurses and health
visitors. In 1976, Hunt's (1978) survey of the elderly living at home
found that 5.5% of the elderly population were receiving regular visits from
a home or district nurse, and 1.7% from a health visitor. Eleven years
earlier the respective percentages had been 2.3% and 1.6%, indicating a
considerable expansion in the home nursing service (Bebbington, 1979). In
fact, the elderly comprise only about a tenth of the caseloads of health
visitors but well over half of the caseloads of home nurses, and both
proportions are gradually increasing (Moroney, 1976, p.53). For example,
40% of home nurse visits in 1956 were to elderly patients (Cmnd 325, p.207)
whereas the figure is over 50% today. In 1968 the Ministry's report On the
State of the Public Health stressed the value of domiciliary health
services in providing a "valuable safeguard against health risks of the
elderly living alone" (Ministry of Health, 1968, p.146). This is well
illustrated by the fact that of those elderly people first visited by a
health visitor in 1973, 76.8% were visited in their own homes (Cmnd 5700,
p.42). It is not clear, however, that the domiciliary health services
provided by home nurses and health visitors are directly substitutable
for residential accommodation (outside hospital) in the way that, say,
domiciliary social services appear to be.

(g) Special Housing. A service that has often been argued to be a
viable alternative to residential accommodation for the less frail elderly
is special housing - comprising sheltered housing, purpose-built flatlets,
bungalows, and so on. Townsend (1962), for example, maintained that adequate
domiciliary and geriatric services, combined with adequate special housing
services, could remove most if not all of the need for residential care,

and suggested 50 special housing units per 1000 elderly. Today that would mean 400,000 units, as compared with the 300,000 or so elderly people currently in sheltered housing (Hunt, 1978; Butler & Oldman, 1979). Most commentators have taken a more moderate line, seeing sheltered housing as only a partial substitute for residential care, albeit an important one, because sheltered housing as presently organised simply could not meet the needs of the typically frail and often confused residents of old people's homes (Plank, 1977, paragraph 2.37; Plank, 1978, p.16; PSSC, 1978, p.56; see also Boucher, 1957, p.39; NOPWC, 1961, p.73; Sumner & Smith, 1969, p.117; Williams, 1967, p.111). The concept of sheltered housing was developed only after 1945, although there had of course been almshouses provided by charities since around 1100 A.D. Today, housing associations provide about 10% of sheltered housing (Butler & Oldman, 1979). The major developments came in the 1960s. Townsend (1962) reported that 4300 units had been built by 1958, at a rate of 9 per 100,000 elderly people. By 1963, approximately 36000 elderly people lived in sheltered housing (Boldy, Abel & Carter, 1973) but this was still less than 1% of the elderly population, and the figure was only 1.1% in 1965 (Cmnd 3022). The figure today is something over 300,000 people, or roughly 5% of the elderly population (Hunt, 1978).[27] At the same time, it is clear from the research of Boldy, for example, that the concept of sheltered housing is changing. Wardens now have many more alarm calls than used to be the case, as tenants of sheltered housing schemes have aged within the schemes, and turnover has remained low (Boldy, 1976 & 1978). Clearly, sheltered housing can act as a substitute for residential care for the more independent elderly, although a pervasive lack of good communication between social services departments, housing associations, and housing departments severely reduces the effectiveness of this service in the total system of care.

Finally, it should be noted that in this section I have generally not made the distinction between statutory and voluntary provision of care services for the elderly. There is evidence to suggest that local authority and voluntary provisions for residential homes are negatively associated, in so far as areas with high voluntary provision had low statutory provision.

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[27] Interestingly, this is exactly the percentage recommended by Rowntree in 1947.

The direction of causality appears to run from the local authority to the voluntary sector (Davies et al, 1971; see also Sumner & Smith, 1969, p.321). Private residential homes will also be substitutes for local authority and voluntary care for some of the more affluent old people. One might expect, given the dramatic increases in private pension schemes and home ownership, that the demand for private care will increase (cf. Davies & Knapp, 1981, chapter 7), although the PSSC (1975, paragraph 43) argued to the contrary. Unfortunately there is no data with which to examine the degree of substitutability or the importance of the private sector.[28] Most of my comments, therefore, should be seen as applying to the combined local authority and voluntary sectors.

2.3.5 Economic Factors   There are a number of economic factors which impinge heavily on the delivery of services to the elderly in need, and some of these have already been encountered in this chapter. In section 2.3.3 I examined a number of social factors, many of which can be linked to post-war industrialisation or general economic development, which have reduced the abilities of family members to care for elderly people (and see Sager, 1979, pp.62-65). I have also discussed some of the 'organisational' arguments for policy in section 2.2.6, and I shall not repeat them here. Concern with the social costs of welfare have influenced policies for the elderly throughout the whole of the post-war period, and some of these concerns are discussed again in chapter 11.

Economic factors are among the most powerful determinants of general policy developments. The Central Policy Review Staff argued that: "It is in practice hard to translate the political aspirations and objectives of a manifesto into a coherent strategy for social policies which a Government can effectively implement. Resources are always scarce. Economic constraints and the constraints of the legislative programme limit the speed at which things can be done" (Central Policy Review Staff, Cabinet Office, 1975, paragraph 2). Public expenditure on the personal social services is influenced less by need or demand and more by the whims and exigencies of

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[28] Although there is plenty of anecdotal evidence (e.g. Hunt, 1978) that the more affluent are more likely to provide themselves with assistance when incapacitated. Personal affluence has a clear influence on the demand for nursing home care in North America (Chicwick, 1976).

economic management (PSSC, 1979, paragraph 14; Bosanquet, 1978, p.105).
Thus, the post-war stop-go policies left a very considerable mark on the
personal social services, and particularly on residential care services for
the elderly which were so crucially dependent on capital expenditure for
their envisioned development. As we shall see in chapter 4, the patterns
of building and design exactly mirror the post-war patterns of economic
activity. Although the available data does not permit it, I should expect
staffing policies and other aspects of care equally to reflect these
economic fluctuations. The present economic recession and our present
personal social services policies well illustrate the experiences of most
of the "stop" phases of post-war economic policy.[29] Capital expenditure
is the first to suffer, but is soon followed by tight restrictions on
other expenditures (Beglin, 1965, p.202; Davies, 1968, p.68; Parker, 1965,
p.22; PSSC, 1975, paragraph 40; Sumner & Smith, 1969).

At a less global level, the general climatic characteristics of the
post-war British economy have also deferred new legislation (Bucke, 1972),
limited the move from residential to community care (Central Policy
Review Staff, 1975, p.15), thwarted expectations (PSSC, 1978, p.57) and
accelerated frustration and disenchantment (PSSC, 1975, paragraph 48).
As well as having an impact on services and service development, the general
economic climate affects the availability of support, and the need and
demand for social care. As Klein wrote in 1975: "So not only has economic
growth stopped, and with it the hope that rising public expenditure on
community services and social benefits would be painlessly financed without
any re-assessment of society's basic priorities. At the same time,
inflation is creating extra demands for those services and benefits. To
compound the problems of social policy in this new era of perplexity and
stringency, the costs of dealing with inflation have to be added to the costs
imposed by inflation" (Klein, 1975, p.3). Economic stress heightens
the demand for care (Bucke, 1972; DHSS, 1977, p.6; Expenditure Committee,
1974, especially paragraphs 264 & 269; Williams, 1967, p.111), which leads
conveniently into the next section.

2.3.6 Demand for Care   My discussion of demographic, social and economic
trends, of increases in the extensiveness of incapacity and loneliness,

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[29] Townsend (1962, p.45): "The government's enthusiasm foundered in the
recurrent storms of real or imaginary economic difficulties".

and of the developments in other welfare, health and housing services all
relate to the need for residential care among the elderly. That need has
clearly increased considerably in the post-war period and is likely to
continue to do so at least until the end of the Century. In this section
I am concerned with a different concept: the demand for residential care,
by which I mean the attitudes of the elderly towards residential care,
and their willingness to apply for admission, or be admitted, to residential
homes.[30] Of course, demands are voiced not only be clients but also by
social workers, relatives, community representatives and anyone else
with a personal, professional, political or administrative interest (e.g.,
see Hall, Land, Parker & Webb, 1975, p.127). We have already noted the
rising public expectations for (largely statutory) care of the elderly
(section 2.2.4) and the period after 1948 also witnessed changing attitudes
and expectations among the elderly themselves. The changing demographic,
social and economic characteristics were important in fashioning these
changed attitudes and expectations, particularly through increasing the
level and changing the nature of need,[31] but other forces were also at
work. Nelson & Longbottom (1978, p.42) defined demand as "a factor
conditioned by expectations, which are in turn conditioned by previous
experience and exposure to points of view". Because residential care
involves the total life of the elderly person, experiences and exposure
are extremely important in fashioning demand.

The elderly in need of residential care in the first ten or so years
after the National Assistance Act had grown up with the experience, if
not at first hand then by repute, of the Workhouse. To these people the
Workhouse was "not simply a relic of history but a living memory" (PSSC,
1975, paragraph 27), and the stigma of the former workhouse took a little

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[30] Need and demand are distinct concepts, but have similar basic deter-
minants; see, for example, Davies (1977), Williams (1974, & 1978a).
Need and demand have frequently been confused, both as terms and concepts
(as in many of the early post-1948 Ministry of Health reports) and as
targets or objectives for service provision (as by some local authorities
at about the same time). It is also important to distinguish demand from
the (arbitrary) number of people on the waiting list for care. Waiting
lists need bear no consistent relationship with demand.

[31] "Consumer attitudes represent a filter through which the pressure of
need has to find its way before becomming effective demand" (Parker,
1969, p.51).

while to disappear, although perhaps faster than expected (Younghusband, 1959, paragraph 490). As new old people's homes were opened, whether purpose built or converted from, say, private residences, so the demand for residential accommodation was immediately stimulated in the locality of these homes (Cmd 9333; Boucher, 1957; Shenfield, 1957; Younghusband, 1959). These changing attitudes were clearly providing an early example of the oft-cited phenomenon of supply creating its own demand (Davies, 1968, p.34; Cmnd 3703, paragraph 304; Parker, 1969; Expenditure Committee, 1971-72, paragraph 12; DHSS, 1976, paragraph 2.3). Other "supply" developments during the period also stimulated demand. Developments in medical science and in the range of care and treatment services offered by local authorities, coupled with a general raising of the standards and quality of care, all helped to raise the level of effective demand from the elderly. Publicity of available services has also been found to raise demand and to be a valuable stimulant of the notification of unmet and previously unrecognised need, and it is to information on services that I now turn.

2.3.7 Information and Evaluation   Information on the availability and quality of social care services has been an important factor in raising the social demand for care. Consequently, examining the methods by which information was gathered and disseminated, its effects on attitudes and policies, and the modes of evaluation applied to it, may help us to understand the post-war developments in social policy for the elderly, and particularly some of the developments in residential care policy. The growing interest, awareness and concern about the elderly has already been discussed in section 2.2.9 and the elements of that discussion are not repeated here. However, it is important to record the influences of information on the policy process for these have probably become as important for policy as they are for theory.[32] Given that "there is a serious lack of information about many social problems, and thus no reliable basis for assessing need or the effectiveness of provision" (Central Policy Review Staff, 1975, paragraph 2), the potential influence of social scientific research, and information generally, may be considerable.

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[32] Blume (1977 & 1979) has provided an interesting account of the development of social policies in essentially Kuhnean terms. My considerably less elegant discussion here implicitly makes similar assumptions about the policy process.

Glennerster (1975, chapter 10) distinguished a number of potential and actual sources of information and evaluation for social policy, and I shall follow his useful distinction in part in this section. Information is revealed and evaluated by the political process, although the pervading lack of political interest in the elderly, together with the general feeling of consensus rather than conflict, have almost certainly meant that political factors (broadly defined) have been less important in this than in other areas of social policy.[33] The Annual Reports of the DHSS still allocate a disproportionately small amount of space to the elderly, as did the early post-war Reports of the Ministry of Health, and the degree of interest is little greater at the local level. However, a Social Work Service study of the post-Seebohm social services departments reported a growing amount of scrutiny of personal social services by elected members and professional officers (DHSS, 1973a), and the relatively new pressure groups for the elderly are beginning to exert an influence on local and central government and public opinion. Earlier in the period, professional organisations like the Association of Social Workers and the British Association of Social Workers probably had more influence, particularly in the Seebohm reorganisation (Glennerster, 1975, p.224; Hall, 1976). Another potentially important source of information and evaluation is the media. Whilst media coverage of social policy has increased considerably in the post-war period, the personal social services do not generally get a good press, with the focus invariably being on crises or failures (Glennerster, 1975, p.223; PSSC, 1979, paragraph 8).[34]

Research has certainly been an important source of information, criticism and suggestion in the post-war personal social services. The number of policy studies of care services for the elderly has actually been relatively small, but the collective influence would appear to have been much greater. The "paradigmatic" view of social policy development lays great stress on the influence of research, whether by academics, by independent research units, or by government (Blume, 1977 & 1979; Davies 1977a) and there would seem to be evidence to support this view in this area.

[33] "Over the mass of local authority activity, party politics does not have much effect" (Griffith, 1966, p.529).

[34] There appears to be no British counterpart to the fascinating research study undertaken by Fields (1979) in the USA.

The surveys sponsored by the Nuffield Foundation in the 1940s, and reported
by Rowntree (1947) and Sheldon (1948), had some influence on the formation
of policy at that time, and particularly on the specifications of the
National Assistance Act and the Ministerial circulars and guidelines which
followed it. Rowntree's work has been described as "the first comprehensive
survey on the problems of ageing" (NOPWC, 1961, p.10), but would not qualify
today as a valid "needs survey" (Beglin, 1965, p.199; Bebbington & Davies,
1980a). Townsend's work towards the end of the 1950s had perhaps the
greatest influence on opinion in the whole period, but surprisingly little
discernible influence upon policy itself. In The Last Refuge, Townsend
concluded that "communal homes of the kind which exist in England and
Wales today do not adequately meet the physical, psychological and social
needs of the elderly people living in them, and that alternative services
and living arrangements should quickly take their place" (Townsend, 1962,
p.430). It was because Townsend's conclusions were felt to be excessively
negative, and his policy recommendations so unrealistic, that they had only
a limited effect (Beglin, 1965; Plank, 1978a). In fairness, the economic
and political climate of the early 1960s hardly allowed the kind of
fundamental policy shifts envisaged by Townsend. The vitriolic criticisms
of Robb (1967) and Meacher (1972) also had less impact than might have been
expected, and again this can probably be partly explained in terms of the
reactions to their excessively critical conclusions (see for example, Cmnd
3687; Klein, 1974a, pp.228-9; Evans, 1977, pp.141-2). Independent research
units and institutions have had very little impact on social policies for the
elderly in Britain, and the only institute that has approached an influential
position, the PSSC, was closed down when its influence got to be too great.
Similarly, it is hard to think of central or local government research which
has noticeably influenced policy. Local research was stimulated by the
Seebohm recommendations (Cmnd 3703, paragraph 293) and the request for ten
year plans in 1972 (see DHSS, 1973a, p.19). Needs surveys were undertaken
among the elderly population. Generally,however, local authority research
sections have remained solely as suppliers of information to committees and
DHSS, rather than active initiators of policy research.

2.4 Policy Making: Conclusions

The post-war changes in policy towards the elderly would appear to
have been mainly incremental in nature, "based on an agreed consensus model

of the nature of the problems being tackled and of the policy tools available for dealing with them" (Klein, 1974a, p.229). Only when the differences between the model and the realities of care become too great are there changes in perception and searches for new models (ibid., also see Blume, 1977; Klein, 1974 & 1976). Of course there have been some conflicts - particularly between the Ministry or Department and the local authorities, between service professionals and non-professionals, and between the humanitarian and organisational perspectives of the social problem of old age.[35] These conflicting pressures of opinion and evidence, perspective and interest, ideology and information, have influenced the post-war development of policy for the elderly at the margin, but there have been few policy changes which have not been developmental or incremental in nature.

In this chapter a number of the more important and more relevant post-war factors and trends in care of the elderly have been considered. These factors and trends not only provide a background to the more detailed discussions of outputs, resource inputs and non-resource inputs in the next three chapters, but also provide both confirmation and illustration of the overall production of welfare approach. Financial retrenchment in the personal social services, accompanied by both growing expectations about care services for the elderly and increasing pressures upon them, serve to reinforce the pressing need for a valid and comprehensive "planning philosophy" for care. The so-called production of welfare approach to residential care, which is now discussed in more detail, may well provide the solid basis necessary for the establishment of such a philosophy of provision.

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[35] Bosanquet (1978, p.121) has made a similar distinction between what he calls the "visionaries" and the "realists", and Culyer (1976, chapter 1) distinguishes the "romantic", "monotechnic" and "economic" approaches to policy-making.

Chapter 3   THE OUTPUTS OF RESIDENTIAL CARE

3.1 Introduction

Two output concepts were distinguished in chapter one: final outputs,
which measure the success of a home in achieving its explicit or implicit
policy objectives, and intermediate outputs, which are measures of what a
home does and the services it renders (rather than its effects on residents).
These concepts are now more rigorously defined and described, and some of
the principal techniques for their measurement are reviewed. In this
chapter I also examine output levels during the post-war period. As
previously argued, it is final outputs which are of most relevance and
value for policy making, but intermediate outputs which have nearly always
been "measured" and discussed. The available evidence on actual levels
of output clearly illustrates this with a dearth of information on final
outputs, and a relative glut of intermediate output data.[1]

The previous chapter documented some of the more important ideological
changes, or pervasive trends, of the post-war period. Many of these changes
and trends crucially determined the conceptualisations of final and,
to a lesser extent, intermediate outputs. The move towards differentiated
individual needs, the growing concern about the effectiveness as opposed
to the role of homes, and the "discovery" of new dimensions of need and
concern have all played an important part in the conceptualisation of final
output, and also in shifting attention away from intermediate and towards
final outputs. "The very meaning of health and well-being constantly
broadens as society recognises new possibilities of achievement through
medical advance and attains a deeper understanding of human needs" (Cmnd
1973, paragraph 6). The changing definition of final output has exactly
mirrored the changing statement of objectives of residential care, by
virtue of the fact that final outputs are measured along the dimensions of
policy objectives. A discussion of final outputs cannot therefore be divorced
from a discussion of policy objectives. The increasing emphasis on final
as opposed to intermediate outputs has partly been a result of the general
trend of increasing dissatisfaction with hard, objective data on social

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[1] It is important to bear in mind that the glut is relative to final outputs:
in contrast to, say, indicators in health or other social services, and
particularly in contrast to economic activities, the available evidence
and data are particularly sparse.

problems and policies and partly a result of the developing ideologies discussed earlier. I shall nevertheless examine the levels of various intermediate outputs at different times in the post-war period, taking a generously wide definition of the concept. Whilst final output indicators are to be preferred, intermediate indicators do have the virtue of being instantly recognised by policy makers and administrators, of allowing comparison with the changing inputs into care (chapters 4 and 5), and of allowing crude comparisons with other services and activities.

3.2 Final Output: Conceptualisation[2] and Dimensionality

"The measurement of final output is the measurement of ultimate effectiveness or the extent to which the organisation is successful in achieving its policy objectives" (Institute of Municipal Treasurers and Accountants, 1972, p.iv). This clear definition of final output accords with implicit and explicit definitions appearing in a variety of quite different literatures. Billis (1975, p.39), for example, defined the output of a home as the "positive change or prevention of deterioration in social functioning", and in the American social work literature Brody & Krailo (1978, p.227) argued that performance must be assessed by "the extent to which an agency accomplishes the predetermined objectives of its programme". The conceptualisation and measurement of final output requires a comparison between individuals or groups of individuals, and between time periods, having first established the objectives of care.

3.2.1 The Objectives of Residential Care   Our first task is to distinguish the objectives of residential care. Lindblom (1963) argued that any programme will be viewed differently by the various groups involved and that therefore no consensus on objectives can be reached. Glennerster (1975) took up this line of argument: "Social services are typically concerned with areas where either final objectives are in dispute or where there is disagreement on what weight to attach to the several outcomes. Where agreement does exist, it usually focuses on means not ends" (ibid., p.162). It is indeed true that policy argument has been more concerned with means than ends, and this has often brought criticism (Aves, 1961; Expenditure

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[2] The distinction can be made between conceptualisation, measurement and valuation of final outputs. These three procedures are described in more detail in chapter 11, where some examples are given. In this chapter I am concerned with conceptualisation (section 3.2) and, to a lesser extent, with measurement (section 3.3).

Committee, 1971-72; Griffith, 1966; Lind & Wiseman, 1978; Sumner & Smith, 1969; Tilley, 1973). We have, however, already noted important recent changes in emphasis in this regard (section 2.2). It is also true that there are difficulties in attaching weights to the various outcomes or final outputs, although these difficulties can be exaggerated. The production relations approach, for example, allows the empirical construction of weights (or rates of transformation), and anyway there is often a sufficiently specific and agreed hierarchy of objectives to treat some outputs as intermediate in the production of others. Finally, whilst there has not always been complete agreement on the objectives of care, we have already seen in the previous chapter that this can easily be exaggerated (see also Prentice, 1978, pp.14-38; IMTA, 1972, p.15), and there really seems to have been much less disagreement on ends than on means. Final objectives of care have certainly changed over the period, and I briefly examine these changes here.

In 1971-72, the Expenditure Committee of the House of Commons argued that "aims and objectives might ideally be expressed in terms of the type and quality of life which old people should lead, the help, support or care which they need to enable them to do so, and the appropriate contribution of public authorities" (ibid., paragraph 11). Whilst vague, this was one of the earliest statements of the objectives of care, and certainly one of the first to mention resident-level objectives. This vagueness reflected the complexity of objectives, attributable to the long history of public policies in the residential care field (PSSC, 1975, p.23), and the rarity of written or published statements of objectives at the local level (DHSS, 1979, paragraph 2.1). Whilst there is a sad lack of explicit objectives at the home or local authority level there has not been a shortage of statements of objectives from the DHSS or from academics. Dimensionalities certainly differ to some extent, but "the objectives of Personal Social Services seem reasonably well agreed" (IMTA, 1972, p.2). The most important objectives of care of the elderly today would appear to be[3]: (a) nurture, providing for comfort, security, warmth and general physical well-being; (b) maintenance or improvement of health; (c) compensation for disability; (d) maintenance or improvement of independence and identity;

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[3] See, for example, Algie (1972),Challis (1981), DHSS (1977a), Expenditure Committee (1971-72),IMTA (1972),Linn et al (1977),NOPWC (1961),PSSC (1977),Townsend (1962),Wright (1974 & 1978).

(e) social integration; (f) fostering family relationships, including
relieving the burden of care; and (g) improvement of morale. These
objectives are for all care services, and we shall see below that those for
residential care are rather more narrowly defined. There will of course
be conflicts and causal interrelationships between objectives, but it is
one advantage of the production relations approach that it can call upon a
repertoire of techniques to tease out these conflicts and causalities,
given adequate specification of the objectives and measurement of the outputs.

It is clear from a reading of the literature that these objectives of
care have "accumulated rather than ... been deliberately planned" (Carstairs
& Morrison, 1971, paragraph 7.51). We have already seen how underlying
attitudes have shifted from undifferentiated to differentiated individual
needs and objectives, and from negative to positive attitudes regarding
the care of the elderly. "The revolutionary change during the period
/1950-1975/ was the realisation that because they atrophy or grow as
people through their experiences in an all-encompassing milieu, this
itself should make the well-being of persons a central aim in /the
institution's/ particular treatment or custodial functions" (Younghusband,
1978, vol. 2, p.174). The reports of the Nuffield surveys of the 1940s did
not mention individual objectives of care at all (Rowntree, 1947; Sheldon,
1948); the Ministerial Annual Reports were dominated with considerations of
capital financing, new homes and the growing number of residents, to the
exclusion of resident-level considerations; and the influential policy
studies of the period (such as those of Davies, 1968; Griffith, 1966; Paige
& Jones, 1965; Sumner & Smith, 1969) made no mention of final outputs.
There was a distinct move in the early 1970s towards more positive, but
also more pragmatic and less ambitious, aims for the personal social
services, and "social work objectives became modest compared with the Aladdin's
lamp claims of earlier enthusiasts" (Younghusband, 1978, vol.2, p.151).
Another, more recent, change has been the lessened emphasis on the mainten-
ance or improvement of health as an objective of the personal social services,
and a corresponding increasing emphasis on morale or global well-being.
For example, Building Note 2 issued by the DHSS (1973) stressed the need
for independence to foster individuality, dignity and respect in old people's
homes, whilst a later Memorandum of Guidance (DHSS, 1977a) commented on
the need for independence to ensure physical and mental well-being.

Goldberg opened the discussion of comprehensive objectives when she

argued that "a modest improvement in ... morale and a higher degree of safety and comfort ... may constitute measurable objectives" of domiciliary services for old people (Goldberg, 1970, p.26). A little later in the book she listed four possible changes that might result from social work: environmental changes (in housing, amenities, income and services); changes in functioning (mobility, health, capacity for self care, diet, general activities and interests); changes in subjective attitudes (depression, loneliness and satisfaction); and changes detected by outside assessors in the extent and nature of need. Goldberg's dimensions of social work impact are notable not only because of their chronological priority but also because they include both the morale or general satisfaction of the client - a dimension emphasised many times in the American gerontological literature and in the work of the philosophers and developmental psychologists upon which it is based - and the feelings of persons other than the elderly individual. Rarely does one find an account of the impact of social care upon the resident's or client's "significant others".

The first official statement of care objectives which approached the comprehensiveness demanded by the social welfare paradigm came in the Eighth Report of the Expenditure Committee (1971-72) which mentioned independence and self-respect, compensation for incapacity, independence, medical treatment and the maintenance or improvement of health. It is disappointing to note that no subsequent statements from central government have built upon this statement, although much encouragement has been given to independent bodies, and government agencies such as the PSSC, in this regard.

It has not always proved easy to specify the objectives of care. An immediate difficulty arises from the absence of an underlying philosophy of care, which makes the objectives unclear (PSSC, 1977, paragraph 67). In answering the first question posed by members of the House of Commons Expenditure Committee (1971-72), the DHSS spokesman said that "when you come to the elderly it is singularly difficult to define objectives and to classify them" (ibid., question 1). We have seen, however, that a philosophy of care is developing and that objectives are being specified. Second," many of the objectives of personal social services are hidden objectives and ... not ... enshrined in legislation" (Glennerster, 1975, p.167). The real reasons for decisions may not be quite as they seem. The problem

facing the researcher and policy-maker is to tease out the true (hidden) objectives. Third, there will be occasions when there is a definite lack of consensus about the objectives of care, although the objectives of care services for the elderly, and particularly residential care, would appear to be less a point of contention than the objectives of, say, care services for the mentally handicapped or even for children. Where conflicts exist they tend to be conflicts of emphasis, of relative importance, rather than conflicts of opposing opinion. "There is considerable tension between ensuring the safety yet promoting the freedom of people in care; between offering protection yet providing a convenient and reasonably low cost environment; and between avoiding the visible instance of harm on the one hand and the promotion of a high quality of everyday life for residents on the other" (PSSC, 1975, paragraph 53). A fourth problem concerns the changing objectives of care, particularly objectives of services which are responsive to the changing needs of clients. Objectives, argues Donnison (1965) originate at the local level and filter up through the hierarchy, and any attempt to impose centrally determined objectives is likely to be unsuccessful (Glennerster, 1975, p.167). However, evidence from the Social Work Service surveys (DHSS, 1976c & 1979) suggests very little local determination of objectives for individual residents, and that any differences of opinion tend to be differences of emphasis rather than direction. A related difficulty concerns the multiple objectives of social care services, but as already argued, the production relations methodology is eminently well-suited to handle such problems. It can also be argued that we need to consult the residents themselves - that we need client opinions. This is quite correct, but not at the level of analysis frequently discussed in the policy literature. Glennerster (1975, pp.164-165) cites the example of the elderly person who would prefer to remain living in the community, whilst the social services department representatives - and perhaps the general public - would prefer him to move into a residential home. The trouble here is that the policy discussion is at the wrong level: the discussion concerns not one but at least two services, and looks not at final but at intermediate objectives. The policy question needs to be carefully specified (cf. chapter 11). A seventh potential difficulty with the specification of objectives for the production of welfare model is that measurement may well prove to be impossible. Glennerster (1975, pp.168-170) is critical of the measurement

of objectives and outputs in practice, because they are intermediate, but
in so doing ignores an underswell of optimism about the measurement of
<u>final</u> objectives or outputs. Recently, a number of researchers have made
significant inroads into this difficult area for related services (e.g.
Challis & Davies, 1980; Culyer, Lavers & Williams, 1971; Rosser & Kind,
1978; Wright, 1974 & 1978), and there is a great deal of evidence to
suggest the feasibility of measuring objectives in old people's homes, as
I shall shortly demonstrate. Finally, it has been pointed out that many
personal social services objectives are shared with other services - such
as housing, education and health. In the case of residential care of the
elderly this overlap is both small and does not obstruct our pursuit of
policy indicators.

3.2.2   Final Output Measurement in Principle   In order to clarify the

nature of the comparisons used to measure final output it is helpful to
introduce the notation:

W = the general welfare or well-being of an individual;

W(1) = welfare, at time 1, of a resident of a home;

W(2) = welfare, at time 2, of that same resident;

W*(1) = welfare, at time 1, of a non-resident; and

W*(2) = welfare, at time 2, of that same non-resident.

In measuring final output, at least three different comparisons can be
made. The objectives of the residential care services serve to define the
components of W, and the extent to which these objectives are reached is a
measure of final output. Letting Q denote final output, we have definition
A:

$$Q(A) = W(2) - W(1),$$

i.e. what Goldberg (1970, p.131) calls "the movement within each group
between first and second assessments". This is the comparison that is used
in the production relations approach - the improvement in welfare, or the
lessened deterioration in welfare, over a particular length of time.[4] The
assumption then is that Q(A), the inter-temporal change in welfare, can
come about as a result of the particular configuration of resource and non-
resource inputs supplied to the elderly resident. A relationship between

[4] The definition can of course be extended to more than two time periods,
and the estimation of production relations in mainstream economics has
most frequently been based on time series of data.

output(s) and inputs is assumed to exist for every individual resident, and a comparison of the output and input levels between individuals will shed light on what I shall call the production of welfare function. This comparison between individuals is a statistical one; it is effected immediately by the adoption of multiple regression and related techniques.[5] Thus the comparison made by the production relations approach is entirely self-contained; no reference need be made to non-residents. A second form of comparison is to look at

$$Q(B) = W(2) - W*(2),$$

"the difference in outcome between the groups /comparing/ the state of the clients in the special group with that of the clients in the comparison group at the end of the experiment" (Goldberg, 1970, p.131). The problem with final output measure $Q(B)$ is that it will only be valid if $W(1) = W*(1)$: that is, if the welfare of resident and non-resident at the outset are identical. This imposes a major restriction on the type of experimental design with matched samples that must be adopted. A third method is to compare the changes of welfare of the two individuals, one resident and the other non-resident, in the home:

$$Q(C) = /\overline{W}(2) - W(1)/ - /\overline{W}*(2) - W*(1)/.$$

This seems to be the output concept that the IMTA Working Party had in mind in their discussion of principles and techniques of output measurement (IMTA, 1972, p.3), and the kind of measure implicit in the discussions of, for example, Wager (1972).[6] This third kind of output measure is also the one favoured by Rossi, Freeman & Wright (1979), and used in the Kent Community Care Project (Challis & Davies, 1980a). $Q(C)$ means that we need not match individuals on initial welfare levels and if we did, then $Q(C)$ would immediately reduce to $Q(B)$. The comparison implicit in $Q(C)$ is not, however, needed within a production relations framework, because of the nature of multivariate analyses involving the examination of causal relationships between resource inputs, non-resource inputs and outputs. Given sufficient data on a sufficient number of residents, the production

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[5] Intermediate output production function estimates are presented in chapter 8.

[6] "To reach a conclusion on the relative benefits of residential and domiciliary care, it would be necessary to follow the progress of matched groups of elderly persons, half of whom entered residential care, to assess the relative satisfaction gained from their comparative situations" (Wager, 1972, p.61). Siegfried & Sweeney (1980) and Chamberlain (1980) discuss the biases inherent in these different measures of output or impact.

relations approach only needs output measures of the Q(A) type. The
implicit comparison group in the production relations approach is the group
of residents in homes with other constellations of resource and non-resource
inputs.

3.2.3   The Dimensions of Final Output

It is important that measures of
final output are based on a definition of welfare which ranges over all aspects
of an elderly individual's life and physical, mental and psychological
well-being. Outputs should include all those consequences that so directly
reflect aspects of welfare that they are valued in their own right. Since
the old people's home is in practice often almost a self-contained community,
nearly all aspects of a resident's life and quality of life could well be
influenced by inputs. Therefore, a theory such as the production relations
theory, that seeks to explain the relationship between inputs and the
quality of life must attempt to explain a formidable range of phenomena.
Furthermore, the final output measure must be at the resident not the home
level. One reason for this is that environments are not only very variable
between homes but also that one dimension of the complexity of the variations
is the variability of the micro-environments of individual residents. Some
of the American literature (e.g., Linn et al, 1977, and the references
therein) discusses the importance of "environmental niches", in which one
member of the staff or one congenial fellow resident can make a vast
difference to well-being. A second reason is the enormous variety of
similar environments in their consequences for psychological well-being.
It follows from the variety of individual reactions to similar environments
and the diversity and complexity of micro-environments that it is essential
to conceptualise and measure outputs for residents separately. Later, if
the scale of the policy decision or the nature of the analysis so requires
it, outputs for individual residents can be aggregated into outputs for
residential homes.[7]

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[7] The movement from indicators of individual welfare or quality of life,
broadly defined, to measures of group welfare is a formidable theoretical
and practical research problem. The most straightforward procedure
would simply be to add individual welfare levels, but this would be no
less arbitrary than most other methods. Indeed, even the very operation
of addition is by no means universally accepted (cf. Nash, 1950; Sen,
1970, chapter 8; Sen, 1977). Sen (1970, p.118) distinguishes three
separate, but nevertheless interdependent, problems in using indicators
of individual welfare (or individual preferences or aspirations) to (Cont...)

There have been quite a number of statements of the dimensions either
of final output or of policy objectives in recent years, as we have already
seen. The argument of the production of welfare model is that the most
important general dimension of output is change in resident psychological
well-being, life satisfaction or morale. Other outputs which should be
considered are those which do not directly contribute to resident
psychological well-being but which are received principally by residents,
and outputs enjoyed principally by residents' "significant others",
generally their kith and kin. Among the former are changes in the
physical, mental and sensory status of residents, and the mortality rate
of the home. The straightforward custodial or nurturing role of homes

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7 (Continued)
  draw up statements about, or measures of, social or collective welfare:
      (I) How is individual well-being measured? Do we have a ratio
      measure (as with height or length), a cardinal or interval measure
      (as with temperatures), or only an ordinal or rank measure (as with
      social class)?
      (II) How comparable is individual welfare between persons? When
      can we say that individual A's well-being has increased more
      than the well-being of individual B has decreased, for example?
      (III) What is the form of the function or the mathematical mechanism
      which transforms individual indicators into an indicator of group
      welfare?
  These three questions form the basis of the collective choice problem
  and have long exercised the minds of, amongst others, philosophers,
  psychologists, and mathematical economists. The vast collection of
  literature now assembled under the so-called "collective choice" umbrella
  is an indication of both the importance and complexity of these and related
  questions. The problem of the cardinality or otherwise of individual
  welfare was recognised at least as far back as the eighteenth century
  and was the subject of a recent review by Hull, Moore and Thomas (1973).
  Interpersonal comparisons of welfare and welfare changes have received
  rather less attention due in no small measure to the critical attack
  by the influential Lionel Robbins of 1932. Sen (1977) and Waldner (1972),
  among others, summarise developments that were made despite such
  criticisms. Finally, on the subject of the aggregation of individual
  welfare 'judgements' into a social welfare judgement, present-day
  consideration must start with the seminal work of Arrow (1951). Arrow
  showed how the imposition of even the most innocuous looking assumptions
  regarding welfare judgements and choices nevertheless rendered the
  aggregation problem impossible. Clearly, therefore, it will be necessary
  to explicate more fully the nature and properties of the individual
  welfare measures adopted in any empirical study of the outputs or
  production relations of the personal social services. It is much less
  clear how the researcher should then go about obtaining his aggregate
  output indicators, but the recent contribution of Sen (1977) makes me
  optimistic that a practical solution may soon be found.

might also be included. Among the latter are feelings of relief from the strain and responsibility of domiciliary care, and the benefits (and disbenefits) that flow from perceptions of the quality of care in the home and the quality of life of the residents.

The social welfare paradigm treats some client states as having an importance that is out of proportion to their contribution to the psychological well-being of residents or significant others. Because many of these are inputs, they are more easily measured than psychological well-being, and so more adequate account has been taken of them in research, particularly in British research. Some of them feature regularly in the literature of the policy paradigm because they are assumed to influence the psychological well-being of residents. If they feature prominently for that reason, they must be treated as inputs in empirical studies embodying the production relations approach: their importance is based merely on an hypothesised set of consequences whose existence it is the business of a production relations study to test. Therefore there are some characteristics of residents and of the home that are discussed as inputs in the production of welfare model, although they have sometimes been treated as if they were outputs in previous research and have been discussed in policy documents in a way that does not indicate that they are of importance in their own right.

3.3 Final Output: Measurements and Trends

The foregoing discussion suggests, therefore, that the final outputs upon which the production relations approach should focus are: the general psychological well-being of residents, their physical status, mental status and sensory status, the mortality rate of the home, and outputs enjoyed principally by residents' significant others. I shall not discuss measurement in detail, but merely say enough to explain each of these concepts, to illustrate how we might cope with the problems of measurement, and examine changes in outputs over the post-war period.

3.3.1 Psychological Well-Being   The general psychological well-being

of an elderly person has been central to much applied gerontological research, particularly in North America. The general consensus of opinion, both within gerontology and in its closest relatives, is that well-being is a multi-dimensional concept. Psychologists provide both theoretical and

empirical support for such a viewpoint. For example, Fromm (1949) distinguished six "types of pleasure" ranging from Irrational Pleasure - the relief of irrational psychic tension, through to Happiness - "the criterion of excellence in the art of living", and Wilson (1967) reviews a substantial number of empirical corroborations of the multidimensionality of individual well-being drawn from the psychology and psychiatry literatures. Similarly, the fast-expanding social indicators movement, concerning itself with much broader aspects of welfare, emphasises this multivariate structure (Levy & Guttman, 1975).

Within gerontology itself, Lawton (1975) has provided a useful summary and classification of efforts to measure and examine more than the conventional single well-being dimension. He grouped these efforts into four clusters distinguished mainly by the parent well-being scale upon which each was based. The first group comprised those studies which have pooled a number of independently validated scales or subscales either to form a new multi-dimensional outcome criterion for use in an applied study (e.g., Pierce & Clark, 1973), or simply to examine the nature and extent of inter-battery communalities (e.g., Klemmack, Carlson & Edwards, 1974; Morris, Wolf & Klerman, 1975). It clearly emerges from these studies, despite the wide variations in concepts examined, that a unidimensional well-being measure would considerably mask inter- and intra-battery variations.

The second group of studies has built upon the pioneering work of Bradburn, utilising his ten-item Affect Balance Scale (ABS). This has the advantage of having been validated in studies of an intensity previously unknown (Bradburn, 1969; Bradburn & Caplovitz, 1965). While the ABS is explicitly a latter-day enunciation of hedonism, it does not adhere to the Benthamite assumption that all "pleasures" are qualitatively alike and only different in quantity, but instead postulates the existence of two distinct dimensions - positive and negative affect. The differential statistical behaviour of these affect dimensions against certain external variables further suggests that this dimensionality is not statistically artifactual. Beiser (1974) added items and extracted a third component of well-being which he calls long-term satisfaction. Gerontological applications of the ABS have been relatively few so far but Moriwaki (1974) validated the scale specifically against an elderly sample and Graney (1973) proposed a slight revision. Peace, Hall & Hamblin (1979) examined the ABS with a

sample of residents in old people's homes in London, but found it to be unsuitable with this group. This is exactly as one would have expected given the generality of this scale, and it is a pity they did not examine one of the scales developed especially for use with the elderly.

The final two groups of multidimensional effort are, in contrast, both solidly grounded in gerontology, comprising those studies which are based upon the Life Satisfaction Index (LSI) of Neugarten et al (1961), and the PGC Morale Scale of Lawton (1972). Both scales were constructed on the basis of explicit assumptions as to multi-dimensionality, although unfortunately not all subsequent applications of them have adhered to this structure but have simply considered the indices as a whole and their individual and environmental correlates. Lawton's PGC Morale Scale took multidimensionality as one of its three underlying properties; the other two being applicability to very old and institutionalised individuals and the selection of scale length to optimise the perennial trade-off between reliability on the one hand and respondent fatigue and inattention on the other. Two recent papers, reporting three studies "geared to cross-sample scale reproducibility", found an encouraging similarity in the dimension structure as reflected by factor analysis of the constituent items (Lawton, 1975; Morris & Sherwood, 1975), and recently Challis & Knapp (1980) examined the factorial structure with a British sample of elderly people. These authors found the basic structure to be fairly similar to that uncovered by the American researchers.

Not surprisingly, while the PGC scale has become increasingly popular among gerontologists, the relative maturity of the LSI has resulted in a greater number of applications and examinations. The index was assumed to measure the single concept of life-satisfaction but was based upon five theoretically plausible components of well-being: zest versus apathy, resolution and fortitude, congruence between desired and achieved goals, positive self-concept, and mood tone (Neugarten et al, 1961). Most subsequent applications of the LSI have taken the advice of these authors and computed a single score on either the LSI-A or one of its many derivatives. This unidimensionality has persisted despite factor analytic studies for both American and British samples (Adams, 1969; Bigot, 1974) which provided empirically constructed dimensionalities. There have of course been exceptions to the pervasive assumption of unidimensionality.

For example, Klemmeck et al (1974), in their examination of interbattery factor structure, take only the ten "best" items found by Adams, and Bigot himself investigated the performance of his two main components against age and socioeconomic status. Particularly significant was the marked difference in both the nature and magnitude of the component performance and the considerable blurring of age and class differences resulting from an aggregation of the components into a single life satisfaction index.

These four groups of studies have thus concerned themselves with the multidimensionality of individual well-being as reflected either theoretically by the item content or empirically by the underlying factor structure of the particular well-being index used. Encouraged by this, I conducted a study of life satisfaction variations (measured on the LSI) among a sample of 52 elderly people resident in a south coast resort (Knapp, 1976; see also Knapp, 1977). The paper took as its basic premise the multidimensionality of individual well-being. Using the dimensional structure suggested by the factor analysis of Adams (1969), a four-equation multiple regression model was constructed, with the endogenous variables being the four dimensions of life satisfaction: mood tone, zest for life, congruence between desired and achieved goals, and resolution and fortitude. The set of exogenous variables comprised a number of biographical and activity indicators used in previous gerontological research. The model was estimated in the usual way, and statistical and theoretical considerations were borne in mind in the selection of regressors in the final specifications. The estimated equations varied considerably in terms of both the content of the regressor sets and the goodness-of-fit. The first equation, explaining the determination of over-all affect or mood tone, provided partial support for the Activity Theory of ageing and also for the Disengagement Theory. The nature and importance of other regressors in this and other equations also provided direct evidence on a number of previously expounded gerontological hypotheses, although all of them were originally couched in a unidimensional framework. Similar conclusions were reached in a later study which adopted an alternative dimensionality for life satisfaction (Knapp, 1977).

The encouraging results from these and similar analyses suggest that the multidimensional modelling of life satisfaction is both computationally feasible and theoretically profitable. The next step is to compute

differences or changes in life satisfaction as final output indicators. To the best of my knowledge, such morale change variables have never been computed or used as output indicators. Indeed, many researchers explicity assume life satisfaction does not change over time as a result of social intervention because they use life satisfaction measures at a second point in time to validate those measured at a first stage. Other researchers have compared life satisfaction with length of residence in a home with a cross-section sample, and have then argued that the effects of the home on residents can be inferred from the results (e.g., Slater, 1968; Townsend, 1962, p.364). This is a very dangerous inference and quite incorrect. The reluctance to measure changes in life satisfaction, morale or general psychological well-being, coupled with an equal reluctance among British researchers to assess these psychological characteristics of old people's homes' residents at all, makes a review of post-war trends extremely difficult. On top of these difficulties, there are so many uncontrollable influences on morale, so many differences between time periods and care contexts in the expectations, aspirations and orientations of residents, and so many different ways of "measuring" morale and of asking even the same question, that any comparisons become very hazardous indeed. Despite these hazards, I have attempted a fairly crude, but possibly suggestive, comparison of some of the major post-war studies.

Despite the central position of resident morale in the production of welfare process, there have been few attempts to measure morale among Britain's elderly. One or two pioneers had attempted to adapt the American morale scales to elderly residents in Britain.[8] Savage et al (1977) report their application of the LSI scale in their research in Newcastle with a number of institutional and non-institutional samples. Fleming (1976) applied

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[8] Studies of the morale of the "non-residential" elderly have been conducted by Abrams (1978), Bigot (1974), Challis & Davies (1980), Goldberg (1970), Knapp (1976 & 1977) and Luker (1979). Another study has examined the morale of a group of elderly people in need of residential care (Challis & Knapp, 1980), using the data collected by Challis and Davies in Kent.

the same scale in a study of an old people's home in the London Borough
of Newham, interviewing all residents initially, interviewing a 50%
sample some 8 weeks later, and the remaining 50% after a further 17 weeks.
The mean scores on the LSI were 12.8, 15.0 and 12.7, respectively, with
samples of 34, 12 and 10 residents, although the author felt that "if
the home had not been disturbed by the Matron's illness there may well
have been a significant change by the end of the project" (ibid., p.44).
Finally, Peace et al (1979) report the application of Bradburn's Affect
Balance Scale with a sample of 155 old people's homes residents. The
mean score of 5.01 compared with a mean of 6.41 in a general British
population (n = 932) in 1975, the latter study having been conducted by
the SSRC Survey Unit (Hall, 1976).

These studies mentioned so far have all used rather small samples,
although they have the virtue of using validated scales. We can also make
some comparisons between findings of three of the major surveys of residential
homes. The first survey was conducted in 1958-59 and reported by Townsend
(1962), the second conducted in 1965-66 by Harris (1968), and the
third conducted in 1972 by Plank (1977). In making comparisons it should be
noted that the survey findings are not strictly comparable, although I
have attempted to make them so wherever possible.[9] One of the differences

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	Townsend (1962)	Harris (1968)	Plank (1977)
Date of Survey	1958-59	1965-66	1972
Location	England & Wales	Nine areas of Eng. & Wales*	Eight London Boroughs**
Types of Home	Local authority & voluntary	Local authority & voluntary	Local authority only
Selection of Homes & Residents	Random sample of homes stratified by size. All residents entering in last 4 months.	Random sample of "recently" admitted residents.	Random sample of all residents.

* Worthing, Salisbury, Holyhead, Sheffield, Preston, Maidenhead, Kidder-
minster, Gosport, Oakham. Randomly selected after stratifying by County
Council vs. County Borough, and by scale which took account of proportion
of elderly in population, industrialisation, provision of welfare
services, and housing standards (see Harris, 1968, p.6).

** Croydon, Enfield, Havering, Lambeth, Lewisham, Merton, Tower Hamlets
and Westminster - "Representative of provision in Inner and Outer
London" (Plank, 1977, paragraph 1.6).

concerns the omission of voluntary homes from Plank's survey, and we
know from Harris' (1968, p.49) study that the proportion of residents liking
their old people's home was substantially higher in precisely those areas
of the country (Gosport and Worthing) where there was a high proportion of
interviewees in voluntary homes, and from Townsend (1962, p.356, 359) that
expressed satisfaction was higher in voluntary homes than in local authority
homes (and see below). The comparison is presented in table 3.1, and it
would appear that, subject to all the caveats set out above, there has
been an upward trend in the satisfaction and general affect of residents

Table 3.1   Satisfaction of Old People's Homes' Residents

Percentage of Residents who:	1958-59	1965-66	1972
Like the home (rather than dislike it)	74.3[a]	84.8[b]	85.0[c]
Say it was right to enter the home	58.0[d]	67.6[e]	-
Wish to stay permanently in the home	30.8[f]	88.4[g]	-
Have enough to do with their time	55.1[h]	-	75.0[j]

Notes:

(a) Percentage of residents saying they were satisfied (yes, definitely;
     yes, on the whole; or yes, with exceptions) with facilities and
     management; 5% of residents were uncertain; n = 413 (Townsend, 1962,
     p.359).

(b) Like the home or like it with qualification; n = 411 (Harris, 1968,
     p.98).

(c) Like it very much or like it a little; with 4% don't know. Also 96%
     get on well or fairly well with staff (1% don't know), and 82% get
     on well or fairly well with other residents (0% don't know); n =
     803. (Plank, 1977, tables 79, 81, 82).

(d) Percentage saying yes, definitely or yes, on the whole; 20.6% don't know;
     n = 419 (Townsend, 1962, p.356).

(e) Percentage who were willing to go into the home; n = 413 (Harris, 1968,
     p.98).

(f) Additionally, 3.1% wished to stay permanently in another home and 12.4%
     were undertain; n = 415 (Townsend, 1962, p.360).

(g) n = 413 (Harris, 1968, p.99).

(h) It was not possible to break down Townsend's figures for local authority,
     voluntary and private homes separately. 5.9% of residents were
     uncertain; n = 465 (Townsend, 1962, table 105).

(j) 12% of residents were not sure; n = 803 (Plank, 1977, table 83).

over the 13 year period spanned by these three studies. Whilst a final
output indicator would measure change in satisfaction, the fact that residents
appear to be happier is itself an achievement, and therefore, an output of
the social care system.

From these three surveys we can also make comparisons between different
care settings. From Townsend (1962) we can construct the table 3.2, which
indicates that voluntary homes showed up much better than others. Some of
these differences would have been endogenously determined by controllable

Table 3.2:   Resident Satisfaction by Type of Home (1958-59)

	EX-PAIs	Other LA Homes	Voluntary Homes	Private Homes
Residents satisfied with facilities & management	62.0%	84.2%	94.3%	72.6%
Residents saying it was right to enter the home	47.1%	64.5%	82.7%	66.1%
Residents wishing to stay permanently in the home	19.8%	37.3%	56.7%	20.4%

Note: See notes a, d and f from table 3.1.

aspects of the home and its modes of care, although much would have been a
result of the exogenous influences of predetermined capital inputs and
resident characteristics. In other words, it would have been very
interesting indeed to have examined differences or variations in residents'
expressions of satisfaction as determined by variations in these endogeous
and exogenous factors. Such a production relations study would be necessary
before one could criticise or praise one particular type of home for what
may apparently be poor or good quality care. The production of welfare
process is much too complex to permit the kinds of simplistic comparisons and
criticisms that have frequently been made.[10] We shall also see, in chapter 11,

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[10]For example, voluntary home residents tend to be less dependent (Townsend,
1962, table 94a; DHSS, 1975, table 4.12); less dependent residents are
more mobile, often by very definition of dependency (Townsend, 1962,
table 96; Plank, 1977, table 15); and the more mobile are more likely to
have a close friend in the home (Townsend, 1962, table 91). Having a
close friend in the home is a very important determinant of life
satisfaction (see chapter 5). We cannot criticise local authorities
for admitting the more dependent elderly to their old people's homes,
particularly at a time when hospitals were discharging large numbers of
elderly patients into the community and when the level of social need was
increasing annually. It is also well-documented that residents of (Cont...)

table 3.3. The picture that emerges is of a considerable drop in the felt
loneliness of residents over the 14 year period. Townsend's sample included
voluntary and private homes, and the former of these received most of the
accolades for high quality care. Plank's sample excluded these homes and we
may possibly have expected - at least from Townsend's arguments - that

Table 3.3: Loneliness among Residents

Proportions of Residents who were:	1958-59	1972
Not lonely (Townsend) or Never Lonely (Plank)	53.2%	71%
Sometimes Lonely (Townsend & Plank)	27.3%	20%
Often Lonely (Townsend) or Lonely Most Days (Plank)	19.4%	7%
Don't Know/No Answer	-	2%
Sample Size	468	803

loneliness in the aggregate would be greater as a result. The proportion
of residents that "never felt lonely" was consistently high across his
eight Boroughs, ranging from 63.6% to 78.9% (unpublished result). The
reduction in loneliness that is observed is thus a highly laudible achievement
of the residential care sector.

Some reasons for loneliness amongst residents are suggested by the work
of these two researchers and cast some light on the nature of production
relations in homes. Townsend found "those admitting to loneliness tended to
be persons who were infirm, who were seldom or never visited, who did not
help in the home or have occupational pastimes, and who expressed a desire
for some occupation - but these correlations were not very striking and were
at least in part attributable to the underlying question of whether or not
the residents had been recently bereaved" (p.350). Plank's tabulated
results indicate that the residents who appeared to be least lonely were
male, aged 75-89, more mobile, and lived in homes with 31-50 beds. In all
cases, however, the relationships were neither strong nor consistent and must
be treated with caution.

3.3.2 Morbidity   Probably the most frequently studied resident character-
istic in British research has been the level of dependency. In this discussion
of welfare dimensions, and thus output dimensions, it is better to distinguish
three separate components: physical status, mental status and sensory
status. These three characteristics, collectively known as morbidity,

may be regarded as valid bases for an output measure in so far as variations in them are in part attributable to variations in resource and non-resource inputs. For example, physical incapacity has been shown to be sensitive to the presence of physical and social prostheses and the degree to which residents are encouraged to use their capacities (Kushlick & Blunden, 1974; Lawton & Cohen, 1974; MacDonald & Butler, 1974).

We must be careful to distinguish between three interrelated, but nevertheless distinct, morbidity concepts: self-rated health, functional health and biomedical health. All three concepts may lay valid claim to inclusion in a multi-dimensional output variable, but there are marked differences between them when we consider their respective justifications for inclusion and the ease of operationalisation in practice. Measures of self-rated health have become increasingly popular in gerontological studies in recent years, a popularity due in no small way to the considerable ease of assessment ("How would you rate your health?") and the apparent importance of self-rated health in the determination of psychological well-being (see Larson, 1978, p.119). Most researchers are agreed that a measure of self-rated health would be a highly unreliable indicator of morbidity. What is not clear, however, is whether the concept stands as an important piece of information in its own right or whether it is merely a component of morale. Some researchers employ morale indicators which include a self-rated health item (for example, the unrevised PGC morale scale of Lawton, 1972), whilst others prefer to keep the concepts definitionally independent (Palmore & Luikart, 1972).

In terms of the dual criterion of theoretical validity and practical operationalisation, measures of self-rated health and of biomedical health are poles apart. Biomedical or epidemiological health is essentially health as a biological phenomenon, as rated, perhaps, by an experienced physician. The concept is difficult to measure and, whilst valid as an outcome indicator in its own right, these difficulties have led researchers to favour measures of functional (or social) health - the well-being of an individual in his normal social context: "A person is well if he is able to carry on his usual daily activities. To the extent that he cannot, he is in a state of dysfunction, or deviation from well-being. ... Clearly, we have described health as a social phenomenon" (Fanshel, 1972, p.319). A functional perspective on morbidity has the appealing virtues of being both valid and

operational. It is not surprising, therefore, to find a long and developmental series of indices and scales for its measurement, many of which have recently been the subject of review - physical function instruments by Wright (1974, 1978), and mental function instruments by, for example, Pyrek & Snyder (1977) and Challis (1981).[13]

As the human body ages there is a deterioration in both physical and mental function, and in sensory acuity. Biological ageing or senescence is a gradual, individual, and inevitable process, and involves the deterioration of the major organs of the body, the nervous, circulatory and digestive systems, and the ability to resist diseases. Reliance on physical function, or change in physical function, as an output measure for old people's homes must therefore take careful account of this natural and inevitable deteriorative change. With this in mind, there would appear to be two approaches to output assessment in a production model of the form described in this thesis. One could take compensation for ill-health or disability, rather than ill-health or disability per se, as the relevant output dimension, or one could attempt to identify and compare the factors which accompany different rates of deterioration in order to determine those that are beneficial and those that are detrimental. Quite a number of policy documents stress the former compensation approach to output measurement (see section 3.2.1; Challis, 1981; or Wright, 1974, for partial reviews), whilst the latter, Markov-type, approach is being applied by Wright (1978).

As well as these physical changes, ageing is also characterised by a deterioration in sensory acuity, which is basically a decline in sensitivity. Elderly people vary enormously in the type and extent of sensory losses experienced and the degree of handicap that results (Brophy, Ernst & Shore, 1977). It is not clear how far sensory impairment and decline is determined by personal factors and how far by environmental factors. Once again, it is the compensation for sensory loss that is the important output of residential care. A study of hearing impairment amongst the residents of twelve homes in North Yorkshire indicated that the impaired were rated by

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[13] One of the most interesting of recent British studies is reported by Rosser & Kind (1978). Interest in this subject is certainly great, as witnessed by the papers presented at the Health Economics Conference, York, 1990.

staff as "more confused, socially isolated and paranoid than their less
impaired peers, but this probably represented stereotyping rather than
residents' actual behaviour" (Martin & Peckford, 1977, p.2). In other words,
if the inference of these two researchers is correct, residents with marked
sensory impairment will be given other labels which represent reduced
compensation for impairment. Brophy et al (1977) developed a conveniently
short instrument for the assessment of loss in hearing, vision, smell, taste,
tactile sensitivity, dexterity and balance. It would seem to be possible
to use this type of instrument as a basis for an output dimension measure,
provided one recognised the need for assessing the degree to which the caring
environment helped the resident overcome his impairment.

The third aspect of morbidity is mental function or health. Generally,
mental or psychological change in old age is less well understood than either
the physical or sensory changes. There are changes in personality as an
individual ages and these "personality developments" have been used to
generate and subsequently validate the central output concept of psychological
well-being. In addition, there are changes in intellect, although not all
dimensions of intelligence necessarily change with age. Evidence on the
observed changes is not unambiguous but it seems that there are declines in
memory and drive, and the abilities to categorise and to feel emotions.
Rigidity tends to increase with age. Many of these changes may, however, be
more representative of the influence of social factors than of developmental
processes. As with physical function and sensory acuity, there have been a
number of attempts to develop scales and indices for the measurement of
psychological function and its decline. Also in common with these other
two dimensions of morbidity, there are a number of recent reviews of these
various measurement instruments and I do not therefore attempt to review
them here (Challis, 1981; Copeland et al, 1976; Pitt, 1974; Pyrek & Snyder,
1977; Snyder et al, 1978). In the residential context researchers have
tended to focus on anxiety, depression and confusion. Lipman & Slater (1975,
1977) pulled together a number of previous mental status questionnaires for
use in their study of the architectural design implications of residential
homes for the elderly. They found that a trichotomous rating of resident
confusion by the matron of the home (rational/moderately confused/severely
confused) was related significantly to scores obtained from their carefully
developed 21 item confusion assessment schedule. Confusion scores were
significantly related to a number of architectural and environmental

characteristics. A few years earlier, Meacher's (1972) study of the elderly mentally infirm had shown how confusion is often an adaptive response to incongruence between the environment and the resident, and a smaller study of ten old people's homes in Cheshire suggested that resident confusion was higher in environments providing more activity. Whilst I would have a few methodological reservations about some of the studies that have been performed, there is no denying the weight of theoretical and empirical support for treating confusion as an output variable.

Central to some of the potential applications of our final output concept is a comparison of the welfare consequences of intervention and non-intervention. In the case of morbidity or health status, this comparison will be particularly problematic in view of the deterioration in physical, sensory and mental function that constitute the ageing process. There have been plenty of surveys of old people's home residents which have assessed dependency, capacity for self-care, or morbidity per se (and these are discussed later), but very few which have made an assessment at two or more points in time. A review of trends in changed morbidity, or compensation for disability, is thus very easy to perform. Goldberg (1970) looked at the change in functioning in her sample of three hundred aged clients living in their own homes. Physical functioning was recorded, covering capacity for self care, state of health and nutritional state. Overall, she found differences between her two groups of clients, one group receiving help from trained social workers and the other being in the care of the department's social welfare officers. Challis & Davies (1980) used similar change variables in their evaluation of an innovative community care scheme for the elderly and their analysis of causal relationships is continuing. The only similar "change study" for residents of old people's homes appears to be that conducted by Fleming (1976). Unfortunately, his results are of little interest in the present context as his sample was very small and he recorded only self-help capacities as influenced by the introduction of a Self-Help Club. Changes over the period of his study are thus unlikely to be typical of old people's homes in general. I return to an examination of dependency levels in section 3.5 below.

3.3.3 Mortality

Mortality rates, and general social and individual aspects of mortality as a whole are salient to the production relations model of residential care services for the elderly. The question of predicting

survival in a residential context has been addressed by many generations of researchers. Equally important, however, are the problems of bereavement and grief, of coping with death and dying, of "social death", and of the social role of the dying person. Feelings of bereavement, loss and grief on the part of relatives and friends of the deceased resident will generally be mixed with feelings of relief and acceptance of the inevitability of death, just as the ageing resident will himself approach death with an ambivalence of emotions. The question of bereavement is therefore taken up again below. Death is not only a physidogical state or process, but also a social phenomenon: "People are socially dead when we no longer treat them as people but as unthinking, unfeeling objects. Social death has occurred when people talk about the dying person rather than to the dying person even when the dying person is capable of hearing and understanding what is being said. Thus, social death sometimes occurs before physical death" (Atchley, 1977, p.180). Thus it is possible to observe residents of old people's homes that have been "assigned the social role of dying person", often signifying the total dominance by environmental factors over the dwindling personal resources of the dying resident.

It is unlikely that many people would argue against the inclusion of mortality in the list of output dimensions for a residential home, although there are few explicit arguments in favour (recent exceptions including Manard, Woehle & Heilman, 1977, and Noelker & Harel, 1977). There have, however, been a large number of previous studies which have examined the effects of a variety of social and personal characteristics and events upon mortality rates in residential care settings. Although the evidence contained in much of the literature is ambiguous with respect to causality there can be no questioning the high mortality rate in the period immediately following entry into a residential home (Carp, 1966; Lawton & Yaffe, 1970; Lieberman, 1969, 1974; Liebowitz, 1974; Markson & Cumming, 1974; Wittels & Botwinick, 1974). The mortality rates are particularly high during the first three months. Of course, there are many factors which will affect the impact of residential relocation on the well-being and survival of the ageing person. Schulz & Brenner (1977) reviewed the so-called "relocation literature" and set out a theoretical model which brings together a number of personal and social factors under an umbrella concept of "control". Loss of control

was found to be partially responsible for early death (Schulz, 1976; Schulz & Alderman, 1973). The body of available evidence would suggest that it is both personal and social (environmental) factors which influence survival rates amongst the institutionalised elderly. We must therefore treat with some caution the conclusion of Manard et al (1977, p.74) that "people die because they are sick, and not because they lack nursing care".

In examining trends over the post-war period we must once again be careful in the interpretation of bare figures at different points in time or in different settings. Many factors may lead to the death of a resident; the aim of the home is to delay death and to make it less painful. Thus without data on expected and actual life span it is not possible to measure final output accurately. Simple mortality rates can be considered as a poor second best.

Firstly, we may compute the proportion of residents dying during, say, the period of one year and compare different years.[14] Townsend (1962, p.51) reports data for 146 English and Welsh local authorities in 1959. Of all discharges from local authority residential homes, 24.5% were deaths. This represented a rate of almost 12 deaths per 100 residents, although, as he points out, the rate varied considerably between authorities (from 3 to 26 per 1000), the differences mainly being due to the different rates of hospitalisation of sick or dying residents. Carstairs & Morrison (1971, p.30) report figures for all Scottish homes for 1969, and these are given in table 3.4. Comparing local authority homes with Townsend's figures, the

Table 3.4:   Mortality Rates, Scotland, 1969

	Local Authority Homes	Voluntary Homes	Private Homes
Death rates	17.1%	18.0%	27.5%
Within-home death rates	10.5%	11.2%	22.3%
Number of residents	6925	3650	331

"within-home" mortality rate was slightly smaller in Scotland in 1969 than in England and Wales ten years earlier. However, the number of elderly people who left the home to enter hospital, where they subsequently died, was

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[14] There are no nationally collected data on deaths and discharges for British old people's homes. This contrasts with the American position (Ingram & Barry, 1977).

fairly high and it is this hospitalisation rate which once again holds the key to the differences in mortality rates.

The only pure time-series study of mortality that could be found in the English literature was conducted by Davies & Duncan (1974), who report data for old people's homes in Reading for the period 1964-1973 which suggest that death rates have changed only slightly over the period, but that death rates and discharge-to-hospital rates are correlated with a coefficient of -0.47. In the late 1960s a higher proportion of elderly residents were discharged to hospital whilst the death rate within old people's homes fell. By 1973, the discharge rate had reached its lowest point and the death rate its highest. Davies & Duncan (1975) also present data for the number of discharges to hospital and deaths month by month for the ten year period. There is a marked seasonal pattern in these figures, as one would expect from the various clinical studies of the effects of different temperatures (see Exton-Smith, 1977) and the probable seasonal pattern in social work activities.

As well as considering mortality rates for a particular period of time for all residents as a whole we can consider mortality rates by length of stay. Townsend's (1957) study of Bethnal Green included a study of old people admitted to residential homes. He found that 8% died within one month of admission and as many as 44% within one year. Twenty years later, Smith & Lowther (1976) reported a follow-up study of 200 admissions to a residential home, and found that 27% of the residents had died within one year of admission.[15] The study of 1989 residents in Leicestershire reported by Donaldson, Clayton & Clarke (1980) found a similar mortality rate after one year, although because their figures are graphed minutely it is not possible to gauge the exact proportion. Mortality rates were lower in old people's homes than in geriatric or psychogeriatric wards of hospitals, but these differences could be explained in large measure by differences in functional capacity (ibid., table 3).

3.3.4   Outputs Enjoyed by Residents' Significant Others.   Benefits of

[15] Smith & Lowther attributed the high mortality rate in the first year "to emergency admissions for so-called social reasons and the misplacement of over one-third of these people who should have been admitted to hospital."

two kinds may be distinguished - those flowing during the process of, and immediately subsequent to, entry of the aged relative or friend to the home, and those experienced in the period of residence as a whole. At first, residents' significant others express feelings of relief from the strain and responsibility of caring for a dependent and often sick elderly person, but feelings tinged with doubt, guilt and loss. Later, when residence of their aged relative or friend in the home has been fully accepted, the benefits and disbenefits to significant others flow mainly from their perceptions of the quality of care in the home and the quality of life of the residents. Comparisons of the costliness, desirability, and social efficacy of alternative modes of care for the needy elderly have all too often ignored the feelings of strain and responsibility of significant others, and the social and economic restrictions forced upon them. Widely recognised as important, these factors are rarely subjected to the detailed examination they clearly deserve in a practical context.

An immediate benefit of the admission to a home of a dependent person is relief of relatives from strain and responsibility (Cartwright, Hockey & Anderson, 1973; Davies & Duncan, 1975; Expenditure Committee, 1971-72; Isaacs, Livingstone & Neville, 1972; Karcher & Linden, 1974; Reever, Bach-Peterson & Zarit, 1979; Sainsbury & Grad, 1971; Wright, 1978). Many dependent elderly persons in the community live with a sibling or child, themselves often of an age where such additional burdens can be intolerable. The studies mentioned above, and others, have identified many aspects of strain or burden - adverse influences on the mental and physical health of the carer, interference with social and leisure activities, disruption of the household routine and of normal intra-family relationships, and overcrowding of the home. From an economic point of view, a family's responsibility for an elderly relative severely restricts opportunities for employment and imposes an additional financial burden. Strains may lead to intolerance, manifested perhaps through physical ill-treatment or by making life unpleasant for the elderly relative, and significant others may additionally experience tension brought on by feelings of inadequate provision of care (Davies & Duncan, 1975). Admittance of an elderly person to an old people's home thus lifts the burden of care, protection and economic support from the shoulders of children, siblings and friends and removes the concomitant strains and tensions. At the same time, however, residents'

significant others may have feelings of guilt because of their failure to care or because they discharged their caring duties so readily (Stevenson et al, 1978), and feelings of loss from the removal of various psychological comforts. Linn & Gurel (1972) found that family opposition to nursing home placement was related to the elderly patient's estrangement and isolation from family and community.

Another aspect of the output question concerns the general psychological well-being of residents' significant others as influenced by, for example, the removal of strain and the feelings of guilt elucidated above, as well as perceptions of the quality of care in the home and of the quality of life of residents. Family ties and relationships generally get closer as one moves from middle to old age, sibling and fillial concern for the elderly person being particularly strong (Cicirelli, 1977; Seelbach & Sauer, 1977; Shanas et al, 1968). The satisfaction of significant others with the residential environment and with the individual resident's position within it will thus be an important benefit of residential care. The most visible and tangible element is the quality of care provided in the home. Greenwald & Linn (1971) questioned the wives of new admissions to a small sample of American nursing homes. The most common complaint was of inadequate services, followed by poor food and improper diet, lack of therapy or recreation, infrequent visits by a physician, lack of medication, absence of "convenience items", and over-sedation.[16] Shenfield (1957) reported that relatives of residents were happier with small homes.

As well as quality of care, the benefits and disbenefits to significant others will be influenced by the quality of life - that is, the morale and general well-being of the residents - as reported by residents and as perceived by themselves during visits to the home. All life events of the resident within the home have a potential influence, but the event with the greatest impact is clearly death. Bereavement can take three forms (Atchley, 1977, chapter 10): physical, emotional and intellectual. Zach (1978) reports a Welsh study which found the mortality rate of widows in the first

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[16] Gottesman & Bourestom (1974) report an interesting phenomenon in the opposite causal direction - residents who received visits from friends and relatives were accorded better treatment by staff.

year after bereavement increased ten-fold. In the first six months of widowhood, the likelihood of seeking psychiatric help increases dramatically, depression, anxiety, anger and grief being the most common symptoms (Parkes, 1972). The final aspect of bereavement - the intellectual aspect - concerns the idealisation or "purification" of the deceased, and is of little significance in the present context (Lopata, 1973). Whilst resident mortality has received most attention in the literature, it is clear that all dimensions of well-being previously discussed in this and other chapters make a secondary appearance in the production of welfare model through their ability to confer benefits and disbenefits on residents' significant others.

3.4   Aggregation and Transformation of Final Outputs

The foregoing discussion has emphasised the great variety of concepts that should be covered by a final output measure. There is no reason to believe that all aspects of the quality of life should be so highly correlated that they can be treated as a single outcome. A single overall rating of individual welfare simply does not accord with reality. If a measure of overall welfare were required then we would have to find a set of weights with which to aggregate the various dimensions of output or welfare. Aggregation of this latter kind is inappropriate given the range and diversity of output dimensions that even the most cursory of production studies would anticipate.[17] What is required is a concentration of the dimensions, not by aggregation, but by transformation. It may not be possible to compare a resident's position along one dimension of welfare with his position along another dimension, but procedures have been suggested to allow comparisons of one particular <u>combination</u> of positions along the two dimensions with other such combinations. The suggestion for measuring "health status" put forward by Culyer, Lavers & Williams (1971) and the transformation functions that characterise some of the more recent developments in production modelling by economists are clearly of this kind (e.g., Christiansen, Jorgensen & Lau, 1973; Hellinger, 1975;

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[17]Weighted sums of dimensions of welfare (or "utility") are sometimes used to obtain a summary measure of "well-being" in management science studies. See, for example, Huber (1974) and Stimson (1969).

see also Rosser & Kind, 1978; Doessel, 1979).

This is not the case with the work carried out by the Institute of Operational Research. The researchers in that organisation distinguished physical, mental and social ailments, the third of these covering social relations (including isolation), physical environment, crises (such as bereavement) and poverty. These are the ailments to which the health and welfare services are addressed and whose effects they attempt to ameliorate. They then "come to the conclusion that the term independence, or what is the opposite side of the same coin, state of dependency, best describes that aspect of the quality of life which is said to be responsive to the 'good' done by these services" (Fanshel, 1975, p.349). They therefore set out "to classify the elderly by their state of independence from help and care in the usual daily activities" (Jackson & Himatsingani, 1973, p.21), reducing these various ailments to a unidimensional scale of Social Independence States. Our previous comments should provide ample argument against such an approach to output measurement.[18] Thus, not only is reliance on a single output measure like reduced dependency totally unrealistic, it is also extremely dangerous as a policy criterion for it will lead almost inevitably to attempts to reduce dependency levels of residents to the disregard of all the other, and often more important, aspects of quality of life.

To measure final outputs is to measure those changes in welfare that are consequences of the environment and which are valued for their own

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[18] It may,however, be worth quoting the reply of a DHSS witness to the Expenditure Committee of the House of Commons: "In looking at the needs of the elderly there has been a tendency, certainly in the bulk of the research that has been done, to look at dependency and to measure outputs, and so on, and success in terms of how you reduce the dependency of the elderly. Certainly a number of attempts have been made to measure dependency comparatively successfully. We will go on improving this, but dependency is only one measure. We would hope to take it further ... into the general welfare of the elderly. We want to promote something more positive than simply reducing dependency. I do not want to develop that too far because one gets bogged down in all sorts of platitudes, but we do want people to live a more constructive, socially oriented life, more integrated with the community" (Expenditure Committee, 1971-72, answer to question 13).

sake, to measure them separately and for each individual resident, and
to measure them as far along the process of the production of welfare as
is compatible with the development of reliable and valid indicators.
Such final outputs are a necessary prerequisite for a coherent policy
for residential care. Such policy could have only a weak basis in
knowledge without the quantitative description of the variations in the
combinations of outputs.

3.5 Intermediate Outputs: Conceptualisation

Intermediate outputs are indicators of performance, service or
activity rather than indicators of effect, influence or impact: they
are "measures of what the Personal Social Services are doing for their
clients, as opposed to the effect which this has on them" (IMTA, 1972, p.6).
The basic distinction that is sometimes drawn between final and inter-
mediate outputs is that the former are measures of success in achieving
ideological objectives and the latter measure success in achieving planning
objectives. This immediately begs the question of planners' perspectives
and ideologies, but the distinction has the signal virtue of emphasising
the practical advantages of using intermediate output indicators: they
are easier to specify, easier to measure, and are of much use for the
kinds of planning procedures currently used by local and central authorities.
For general research and policy purposes, however, intermediate outputs
are clearly inferior to final outputs. This is the basic dilemma of output
research - for it is intermediate output indicators that are relatively
easy to measure, and which are sometimes even included in the routine
statistics collected and published by central government, whilst it is
final output indicators that we really want. Eight years ago the House
of Commons Expenditure Committee wrote that: "Objectives and targets can
most easily be specified in terms of the development of services. This is
not ideal but at the present state of knowledge and experience such
objectives and targets are more useful to planners and managers, and success
in achieving them is more readily measured. ... However, this kind of
measure relies on professional judgement as to the value of the services
given in promoting their wider aims. It does not measure effectiveness"
(Expenditure Committee, 1971-72, paragraph 18).

The distinction between final and intermediate outputs has often been

made before, although not always using the same terminology. Brody &
Krailo (1978), for example, talk of success in achieving "operating" and
"production" objectives, which are essentially intermediate output
indicators, and success in achieving "impact" objectives, which corresponds
to our final output concept. Davies (1977) talks of three types of
measure - levels of provision, throughput, and the effects of services on
the attainment of their objectives. The distinction is also made in
research on other social services (cf. Hurst, 1977, p.222). The acceptance
of final outputs is by no means universal, however, for some economists reject
the notion "for the same reason that (they) do not regard the output of
a beauty salon as beauty" (Mann & Yett, 1968, footnote 8). Such "output
nihilists" make two basic mistakes. Firstly they are under the impression
that final output measures refer only to changes in client well-being. The
arguments of section 3.3 make it quite clear that such an impression is
misguided. Secondly, proponents of an "intermediate-output-only" approach
go on to argue that both the quality and quantity of output (i.e. care)
should be considered. But in the context of both social care and health
care (where most of these arguments are voiced) we actually have relatively
little hard evidence on the relationship between "quality of care" and the
impact on clients. Thus, reliance on intermediate (quality of care) indicators
can really only be a temporary expedient, and our ultimate aim should always
be to seek final output indicators.

3.6 Intermediate Outputs: Post-War Trends
     For the purposes of discussion, analysis and comparison, I shall
distinguish three broad types of intermediate output: levels of provision,
throughput and quality of care. The third of these, quality of care, is a
poor and possibly a very dangerous measure of output. It is poor not only
because we have very little information on the relationship between quality
of care and final output but also because the concept "quality of care"
hides a myriad of other factors, each of which is quite possibly an important
determinant of final output in its own right. To lump these factors
together into a composite quality of care measure thus wastes a large
amount of information of value to the policy-maker. Quality of care is a
dangerous measure because, at first glance, it has all the appearances and
attributes of good output indicator: it is concerned with activities, with
social environment, with ways of life, with staff-resident ratios, and so on.
Because of this concern with something other than, and presumably beyond, the
purely economic or resource aspects of care, and often because of its

apparent complexity, it may appeal to the researcher and policy-maker.   If
so, the quest for information on the effects of residential care -
principally in residents, but also on residents' significant others - may
prematurely cease.   Quality of care, therefore, can only be an input
indicator, and a wasteful composite one at that, and I therefore say no more
about it in the present chapter.   The other two intermediate output
concepts - the levels of provision and the throughput - are given fairly
detailed treatment.   The discussion of levels of provision is divided into
three, considering the numbers of residents, their dependency, and certain
other characteristics.   The number of places or beds is not an intermediate
output; it is an input and is discussed in chapter 4.

3.6.1   The Number of Residents   The total number of residents supported by
local authorities in homes, whether statutory, voluntary or private, has
grown steadily throughout the entire post-war period.   The information
collected by the Ministry of Health and the DHSS has changed format a few
times over the period making some comparisons difficult.   Table 3.4 gives
information on the number of residents (both elderly and younger physically
handicapped together - the two cannot be separated) in different types of
residential accommodation.   All residents are supported by local authorities,
the figures excluding elderly persons living in registered voluntary and
private homes who are supported by other means, residents in unregistered
voluntary homes, and residents in unregistered private homes.   The figures
include residents in joint user premises owned both by local authorities and
by hospital authorities.   Most of the trends are steady, with the most
dramatic changes coming in the numbers of residents supported by local
authorities in private and voluntary homes.   It can be seen that the growth
in provision of residential home places had virtually stopped by 1978.
Provision per 1000 elderly population increased from 10.8 supported
residents in 1952 to 18.0 in 1976 (England and Wales), with a slight fall
since then.   Despite these recent reversals of trends, the general picture
emerging from a post-war review is an improvement in both the extensiveness
and intensiveness of provision.   It should also be noted that the provision
of both day care services and meals services by old people's homes for old
people not resident in the home has also increased.   Day care provision by
residential homes has never represented more than a small part of total
provision, but can be a major (intermediate) output for a small number of
homes (DHSS, 1975, table D47).   The same applies to the provision of meals

Table 3.4: Numbers of Residents Supported by Local Authorities

Year[2]	All Homes[1]		Local Authority Homes		Private/Voluntary Homes	
	Number[3]	Growth[4]	Number[3]	Growth[4]	Number[3]	Growth[4]
1948	46.4		29.1		4.3	
1949	48.7	4.96	30.2	3.78	5.8	34.88
1950	51.7	6.16	32.1	6.29	6.5	12.07
1951	55.3	6.96	35.5	10.59	7.3	12.31
1952	59.1	6.87	39.6	11.55	7.8	6.85
1953	62.6	5.92	43.2	9.09	8.6	10.26
1954	65.8	5.11	46.1	6.71	9.0	4.65
1955	67.7	2.89	48.1	4.34	9.5	5.65
1956	70.3	3.84	50.6	5.20	10.0	5.26
1957	72.8	3.56	53.1	4.94	10.5	5.00
1958	75.7	3.98	55.6	4.71	11.2	6.67
1959	77.8	2.77	57.4	3.24	11.7	4.46
1960	80.1	2.96	59.9	4.35	12.2	4.27
1961	81.9	2.25	61.7	3.01	12.6	3.28
1962	85.8	4.76	65.7	6.48	13.4	6.35
1963	88.7	3.38	68.7	4.57	13.8	2.99
1964	91.3	2.93	71.7	4.37	14.2	2.90
1965	95.0	4.05	76.1	6.14	14.5	2.11
1966	97.8	2.95	79.5	4.47	14.7	1.38
1967	100.9	3.17	82.8	4.15	15.3	4.08
1968	104.0	3.07	85.8	3.62	15.8	3.27
1969	107.9	3.75	89.3	4.08	16.7	5.70
1970[2]	110.2	2.13	91.4	2.35	17.3	3.59
1972[2]	113.5	2.39	94.7	2.88	17.7	1.85
1973	117.4	3.44	97.0	2.43	19.7	11.30
1974	119.3	1.62	98.8	1.86	19.8	0.51
1975	120.9	1.34	101.2	2.43	19.0	-4.04
1976	123.3	1.99	103.1	1.88	20.2	6.32
1977	124.3	0.81	105.2	2.04	19.1	-5.45
1978	124.9	0.48	105.8	0.57	19.1	0

Notes: 1. Residents supported by local authorities in local authority, private and voluntary homes, and in local authority owned or hospital owned joint user premises.

2. At 31st December from 1948 to 1970; at 31st March from 1972.

3. Thousands.

4. Percentage growth from previous year; growth from 1970 to 1972 computed as average annual growth over the 15 month period.

Sources: DHSS (1975), p.73; DHSS (1978c),p.4. Growth rates computed by the author from the tabulated numbers.

services.

3.6.2. Resident Dependency   The dependency of a resident basically refers
to his or her need for assistance in performing everyday activities ("of
daily living"), and generally covers both incapacity and physical and mental
health. Thus, for example, the 1970 Census of Residential Homes conducted
by the DHSS collected data on continence, physical condition (or mobility),
mental condition and certain self-care tasks (DHSS, 1975, p.27, and see
below), which was later summarised in terms of four dependency categories
(heavy, appreciable, limited and minor dependency). Similarly Building Note
2 identified a number of factors thought to lead to resident dependence on
staff, the most important of which were serious disability or illness, failing
sight, loss of hearing, incontinence, mental confusion, and problems of
mobility (DHSS, 1973). A higher aggregate level of dependency in the home
raises the aggregate staffing need, the type of care given, the building
design and cost of care, as well as complicating any analysis of the need
for places (Sumner & Smith, 1969, p.123; and see chapters 7 to 10 below).

A certain amount of routine information on dependency has been collected
annually by the Ministry of Health or DHSS, although the changes of
definition and classification make it impossible to examine trends for
more than a few years at a time. Furthermore, the nature of information
collected hardly falls within a definition of dependency at all - authorities,
and thus presumably matrons, were merely asked to designate those residents
who were blind, deaf, epileptic or mentally disordered.[19] The majority
of residents - 70% in 1975 - fell into none of these categories. It is
also not clear how consistent are matron assessments, either over time or

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[19] The classification used for annual Ministerial collections has changed
twice since 1952, when resident characteristics were first distinguished.
The classifications used were as follows:
1952-57 Aged not materially handicapped; aged physically handicapped;
         aged mentally handicapped; aged blind; aged deaf; aged epileptic.
1966-75 Aged mentally handicapped; aged blind; aged deaf; aged epileptic;
         other aged persons.
1976-   The RA returns used since 1976 distinguished only the elderly, the
         elderly mentally infirm, the younger physically handicapped, and
         any residents under 65 who are deaf, blind or epileptic. The
         figures appear not have been published.

between homes and authorities (Davies, 1968, p.71; Sumner & Smith, 1969,
p.120). This difficulty will of course arise with all measures of dependency
and morbidity which rely on the assessments of a large number of individuals
by people such as the matrons of homes. However, I might hypothesise,
without evidence, that matron assessments of the details of dependency -
the degree of incontinence, mobility, confusion, and so on - might be
less liable to a cross-sample variation than assessments of "global" condition.[20]

Momentarily leaving aside these reservations, we can examine the annual
collection of data for evidence to support a very large number of "impressions",
reported in the literature and in Annual Reports of the Ministry, that the
dependency and frailty of old people's home residents have increased over
the post-war period.[21] "A look through the annual reports of pre-Seebohm
welfare departments reveals photographs of residents pruning roses, edging
lawns and even cycling along gravel driveways in the gardens of their
adapted Victorian residences, in sharp contrast to the glossier publications
of successor authorities where old people sit in geriatric chairs lined
against the walls of a modern lounge in their purpose-built home amidst a

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[20] Townsend (1962) and Carstairs & Morrison (1971, paragraph 1.19) felt that
assessments of resident dependency, or resident health and capacity
characteristics, by home staff were acceptable. Thomas et al (1979) and
DHSS (1975) both felt that staff assessments should be treated with caution.
The DHSS criticised their own dependency measure for ignoring social
dependency - "the ability of a person to cope with day to day pressures
in the community even if supported by domiciliary services such as home helps,
meals on wheels and visits by social workers" (ibid., paragraph 6.2) - and
for being subjective and not sufficiently finely classified. It is a source
of considerable sadness to note the multitude of different dependency and
incapacity indicators. The great majority of these indicators are applied
without piloting or prior examination of validity and reliability, and a
similar majority are reported in papers which make no reference whatsoever
to the other available indicators and techniques. Townsend's incapacity
scale, drawn up in 1959 is still among the very best and the most widely
available. Despite this, generations of researchers - in academic instit-
utions, local authorities and central government departments - cling to the
arrogant belief that their own personal indicator is superior to all others,
always assuming the researchers are actually aware of the others. A little
more thought and a little less naivety and arrogance would allow the policy-
maker to compare dependency levels over most of the post-war period.
Instead, as we shall see in the text below, the task is extremely difficult.

[21] Among the very many reports from central government and from academics that
could be cited are Cmd 9307 (1954, p.95), Cmnd 325 (1958, p.208), Cmnd
1207 (1960, p.251), Ministry of Health (1962, p.1), DHSS (1977b, para-
graph 25), Davies (1968, p.71), NOPWC (1961, p.73), Sumner & Smith
(1969, pp.119-121, 123); Younghusband (1978, vol.1, p.199).

clutter of zimmer frames. But impressionistic material of this sort is no
substitute for hard evidence, and this is much less easy to come by" (Booth,
1980, p.15). The fragments of evidence that may be assembled from successive
Ministry Annual Reports since 1952 suggest that these impresssions were
quite accurate. These fragmemts are tabulated in table 3.5, and should
be read after consulting the notes at the foot of the table and also footnote
19 above. The incomparability of the figures for periods more than a few
years apart makes it impossible to draw any hard and fast conclusions about
trends in the dependency of residents, but the fragments should be enough
to suggest an increasingly heavy burden of resident dependency on staff.[22]
Furthermore, the increasing numbers of elderly residents with physical
or mental handicap reflect only part of the problem, for there is
undoubtedly a considerable amount of variation over the period in the meaning
of the concept of "physical handicap" or "mental handicap", and also
a great deal of "need" which is unrelated to physical or mental handicap at
all. This will certainly become clearer when we move from these inadequate
official statistics to a comparison of the few national cross-section
surveys conducted during the period, and also to an examination of one or
two very interesting local surveys.

Comparisons of morbidity between studies are notoriously difficult to
make. Researchers tend to use different methods of observation - some use
clinical examination, some use interviewer observations, some use matron
or resident assessment. They also use different questioning techniques and
different criteria for assessing responses. Adding all of these difficulties
to the differences in population and differences in sampling techniques
should lead us to make only cautious comparisons and draw only tentative
conclusions. The number of studies of resident dependency is fairly large,
but the comparisons that are possible are limited, either because the studies
concentrated on a single home or authority at only one point of time, or
because only overall dependency or incapacity was reported, and reported in
a way which made comparison impossible.

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[22] Davies' comparison of 1954 with 1964 had surprisingly given the result of
less "material handicap" in the later year (Davies, 1968, p.71). His
hypothesised explanations of this unexpected result were not necessary:
the figures are simply not comparable.

Table 3.5: Physical and Mental Characteristics of Residents, 1952-1975

Year[1]	Physically or mentally infirm aged (excl.deaf, blind, epileptic & crippled aged) % of all residents[4]	Physically h'-capped or ment-ally h'capped aged (excl.deaf, blind,epileptic aged) % of all residents[2,4]	Physically h' capped, mental-ly h'capped, deaf, blind or epileptic aged: % of all residents.[4]	Mentally disordered, blind, deaf or epileptic aged: %[3,4] of all residents.
1952	39.6			
1953	40.3			
1954	41.9			
1955	42.9			
1956	44.6			
1957	45.1			
1958		35.8	40.9	
1959		34.6	42.1	
1960		34.6	41.8	
1961		34.5	41.7	
1962		34.5	42.7	
1963		34.6	42.1	
1964		34.5	41.8	
1965		34.7	42.3	
1966				24.2
1967				25.1
1968				25.4
1969				25.7
1970				27.6
1972[1]				27.6
1973				30.2
1974				30.8
1975				30.8

Notes: 1. As at 31st December from 1952 to 1970; 31st March thereafter.

2. Not comparable with the figures in column 2.

3. Not comparable with other columns.

4. Blanks denote that figures are not available.

Sources: Annual Reports of the Ministry of Health and DHSS, 1952-1975, and associated statistical publications in recent years.

My first comparisons are based on five major surveys of old people's home residents, published in Townsend (1962), Townsend & Wedderburn (1965) Carstairs & Morrison (1971), DHSS (1975) and Plank (1977). Later I shall also make use of two local surveys - in Cheshire and Sheffield - in conjunction with the 1970 Census to make further comparisons. The five major published surveys differ in their population and sample characteristics as detailed in Table 3.6, and it is clear that my comparisons must be made

Table 3.6: The Dependency Samples

	Townsend	Townsend & Wedderburn	Carstairs & Morrison	DHSS	Plank
Date of survey	1958-59	1962-63	1969	1970	1972
Location	Eng.& Wales	Eng.& Wales	Scotland	Eng.& Wls	8 London Boro's
Type of Home	LA,VOL & PRIV[2]	LA,VOL&PRIV, hospitals & nursing homes	LA,VOL & PRIV[4]	LA & VOL	LA
Selection of homes & residents[5]	Nationally representative sample of homes; all residents & also newly admitted residents.[3]	Sample of residents	Census; residents aged 60 and over.	Census; residents aged 65 and over.	Random sample of all residents
Sample Size	7689, and 530 new residents.[3]	2205	10,906	111,004	803

Notes: 1. Croydon, Enfield, Havering, Lambeth, Lewisham, Merton, Tower Hamlets and Westminster.

2. LA signifies local authority homes, VOL signifies voluntary homes, and PRIV signifies private homes.

3. Newly admitted residents are those entering in the previous 4 months.

4. Aged residents of residential homes, psychiatric hospitals, other hospitals, and nursing homes.

5. Refers to samples used in present comparison.

carefully. As well as comparing all residents covered by these five surveys I shall also attempt to compare samples of newly admitted residents, although "newly admitted" is defined differently in different studies. For example, Townsend (1962) refers to all residents admitted during the previous

4 months, whereas the 1970 Census was concerned with residents admitted in the previous 12 months.

Table 3.7 summarises the main differences between the findings of these five major surveys. Mobility, the most commonly used indicator of resident dependency, is also the most difficult to compare because of a large number of (generally very slight) differences of question-wording, response-choice and interpretation. We can thus distinguish only two characteristics with reasonable reliability - whether or not a resident is bedfast, and whether or not he/she can go outside without assistance. The number of elderly bedfast residents has hardly changed at all between 1958-59 and 1970 (the two English national surveys) but was apparently much higher in London in 1972.[23] The percentage of residents unable to go outside without assistance has increased slightly over the same period. Thus the expected and often hypothesised increase in dependency, as reflected in the most popular indicator of mobility, does not appear to have occurred. However, there is one major factor (a non-resource input, in fact) which may account for this phenomenon. Mobility is very much a function of both staff numbers (or availability) and staff attitudes. Given enough staff with a positive attitude toward resident mobility or independence the number of bedfast or housebound residents can be reduced. (See Chapter 4 for further evidence).

Other marked differences between local authority, voluntary and private home residents are suggested by table 3.7, but there has been little change over the period. Unfortunately, Townsend & Wedderburn (1965) do not report separate incapacities but only an aggregate incapacity index, and Townsend (1962) looked in detail at only newly admitted residents. Unfortunately there is very little data on newly admitted residents for other periods of time at a comparable national or nationally representative level. Difficulties of sample comparison, questionnaire design and question-wording, and computation of similar lengths of stay make such comparisons

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[23] From data collected in the 1970 Residential Census it was clear that a higher proportion of residents aged 65 and over of local authority homes in London were substantially dependent (which included the bedfast) than in the whole of England. Residents in Plank's eight London Boroughs were also slightly more dependent than the national average. The percentages of substantially dependent residents in 1970 were 17.0 in England as a whole, 18.2 in London as a whole, and 17.7 in Plank's eight Boroughs. (Figures computed from DHSS, 1975, pp.46-59.)

Table 3.7: Resident Dependency (Mobility, Mental State, Self Care Capacity and Continence)[11]

(All Aged Residents) Characteristic	1958-59[1] (Townsend 1962)				1962 (Townsend & Wedderburn 1965)	1969[3] (Carstairs & Morrison 1971)			1970[4] (DHSS 1975)		1972 (Plank 1977)
	Former PAIs	Other LA	VOL	PRIV	All Inst'ns[2]	LA	VOL	PRIV	LA	VOL	LA
Mobility											
Bedfast (or mainly so)	1.6%[5]	1.5%[5]	4.8%[5]	10.3%[5]	25.9%	1.9%	1.5%	4.5%	1.5%	2.8%	4%
Cannot go outside without assistance[6]	46.8%	43.7%	32.3%	58.9%	52.0%	41.5%[7]	24.1%[7]	46.5%[7]	51.9%[8]	34.7%[8]	61%
Mental State											
Mentally alert	-	-	-	-	-	57.5%	73.2%	54.7%	56.5%	76.9%	61%[9]
Severely confused	-	-	-	-	-	6.3%	2.3%	3.3%	11.8%	4.2%	-
Self Care Capacity											
Able to dress unaided	72.1%	79.0%	16.7%	36.7%	-	77.9%	89.9%	66.5%	72.6%	85.9%	86%[10]
Able to wash unaided	-	-	-	-	-	83.1%	92.5%	74.0%	83.9%	90.4%	89%[10]
Able to bathe unaided	-	-	-	-	-	-	-	-	13.5%	49.9%	34%[10]
Able to use toilet unaided	-	-	-	-	-	86.6%	93.4%	77.0%	83.9%	90.2%	88%[10]
Continence											
Fully continent	-	-	-	-	-	71.9%	86.1%	71.0%	71.1%	84.9%	-
Doubly incontinent	-	-	-	-	-	4.1%	1.6%	3.6%	6.2%	3.2%	-

Notes:
1. England and Wales, all residents, men aged 65 & over, women aged 60 & over.
2. Old people's homes, hospitals, psychiatric hospitals, and nursing homes, persons aged 65 and over.
3. Scotland, aged 60 and over.
4. England, aged 65 and over.
5. Figures from Townsend's survey exclude temporarily bedfast. If included, the percentages are 7.4, 7.9, 10.0 and 18.2 respectively.
6. Includes the bedfast.
7. Calculated as all residents not fully ambulant (including stairs) with or without artificial aids.
8. Calculated as all residents not ambulant without assistance.
9. Percentage of residents able to cope with most questions.
10. Excluding those who can perform task "with difficulty".
11. Differences between local authority, voluntary and private homes, and between former PAIs and other LA homes, are tabulated in more detail in the reports of these surveys. See, for example, Townsend (1962, pp.263, 520-529), Carstairs & Morrison (1971, pp.64, 66), DHSS (1975, pp.28, 29, 116-125). See also, DHSS Social Work Service (1979, Appendix 28). Differences between old people's home residents, sheltered housing residents, old people on OPH waiting lists, and old people considered suitable for sheltered housing are tabulated by Plank (1977, tables 6, 13, 15, 56-59).

with secondary data too hazardous to perform.[24] Townsend's full sample of
7689 residents may also be used to examine the relationship between
dependency and length of stay, and his figures compared with similar figures
computed by the author from completed questionnaires for 502 residents of
15 old people's homes in Cheshire in 1972. The two samples are not really

Table 3.8: Mobility and Inability to Dress by Length of Stay; 1958-59 & 1977

		0-3mths	4-11mths	1-<2yrs	2-<5yrs	5-<10yrs	10yrs+
No.residents	- 1958-9	788	1489	1385	2437	1515	885
	- 1977	52	109	92	164	62	23
% bedfast	- 1958-9	8.0	7.0	8.0	8.4	11.7	12.6
	- 1977	0	3.7	2.2	1.2	0	13.0
% unable to	- 1958-9	20.8	23.3	23.2	23.8	22.8	26.1
dress	- 1977	23.1	33.0	28.3	26.8	27.4	39.1

Sources: Townsend (1962, table 110) for 1958-59; 1977 figures from
          questionnaires for 15 old people's homes in Cheshire as computed
          by author.

comparable, but the tabulated figures show sufficient differences to warrant
their reporting here. It may be the case that the more immobile (bedfast)
residents are transferred to hospital care today, or that they are given
greater encouragement to remain independent within the home. The gradients
of dependency by length of stay have changed slightly. Whereas in 1958-59
the percentage of residents unable to dress unaided was roughly the same
for all residents except those who had been in the home for more than 10
years, the position in 1977 was rather more complicated. The very new
residents (0-3 months) were much more capable than those admitted 4-11
months before, and a little more capable than all other residents, except
those in the home for ten years or more. Carstairs and Morrison (1971, p.64)
found a similar age gradient, with ten per cent more"newly admitted" residents
(defined as being in the home for up to six months) being "fit" (62.5% to
52.6%), and fewer being "dependent" (5.0% to 8.5%). The corresponding
Census for England and Wales divides residents into those admitted to the

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[24] I did, however, perform just such a hazardous comparison between Townsend's
sample of newly admitted residents and the 52 elderly people in a Cheshire
County Council Census of 1977 resident in homes for the same length of time
(less than four months). In 1958-59, 2% were bedfast as compared with none
in 1977, 3% and 4% respectively were severely incontinent, 16% and 13%
mentally impaired or handicapped, and so on. The hazards of comparison,
and the sampling errors, do not allow any conclusions to be drawn.

home in the last twelve months and others. In this case, the proportion
of "substantially dependent" residents is 16.7% among newly admitted
residents and 16.9% among more established residents, whilst the proportion
of "minimally dependent" residents are 43.8% and 44.9% respectively
(computed from DHSS, 1975, tables D43 and D41).[25]

My third and final set of dependency comparisons is at the "aggregate
dependency" level, using summary indicators of dependency or incapacity,
rather than indicators of individual capacities (such as dressing or walking).
Two comparisons are made, one for Cheshire and one for Sheffield, and in
both cases it is possible to use the data collected in the 1970 Residential
Census and data collected in more recent local Censuses. The 1970 Census
data as published distinguished three levels of dependency - substantial,
moderate and minimal - and these are defined in DHSS (1975, p.27). However,
for the purposes of comparison I shall use an alternative (fourfold)
dependency classification - heavy, appreciable, limited and minor dependency.
This finer classification was used in later DHSS analyses, was reported in
the data made available to the author, and is used in the analyses reported
in chapters 7-10 below. The classification is detailed in the appendix
to this chapter. What is particularly useful is that this fourfold
classification can be applied to the questionnaires made available to the
author for Cheshire, covering residents in 1973-74 and in 1977, and (in
part) to the results reported by Booth (1980) for the census of old people's
homes conducted in Sheffield in early 1976.

The typicality of Cheshire and Sheffield in 1970 is examined with the
help of the figures reported in table 3.9. (Notice that the threefold
classification of dependency is used here because of difficulties in
computing the fourfold classification for the whole country and the regions).
It can be seen that Cheshire residents are more dependent on aggregate than
residents in all English counties or in the whole country. This may reflect

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[25] The data presented here, and presented in tables 4.11, 4.13, D41 and D43
of the Census document are not consistent with the comments made by the
DHSS that "there was a very much larger proportion of heavily dependent
residents amongst the recent admissions than amongst the longer term
residents" (DHSS, 1975, para.4.28). This conclusion by the DHSS has
been quoted by other authors (e.g. Evans, 1977, p.132). The dependency
of residents may be increasing over time but it is not the case, from
this evidence at least, that new residents are more dependent than
established residents.

Table 3.9: Old People's Home Residents in Cheshire and Sheffield, as compared with regional, national, and authority-type figures, 1970

| | LA Supported Residents (All Homes)[1] | | | | LA Homes (only) Dependency(%)[2] | | |
	Total no.	Per 1000 pop'n aged 65+	aged 75+	LA Homes[3]	Sub.	Mod.	Min.
Cheshire	1952	13.1	31.2	67.8	20.8	44.2	34.9
NW England	17321	17.8	41.6	79.5	20.9	38.8	40.3
All Counties	51925	14.2	32.7	82.6	15.7	39.6	44.7
Sheffield	1034	13.7	34.1	79.6	17.8	31.2	51.1
Yorkshire	12135	18.0	42.3	88.6	15.2	36.7	48.1
All Co.Boros	40635	20.7	47.4	83.5	17.6	38.3	44.1
England	113244	17.1	39.2	80.5	16.9	38.6	44.5

Notes: 1. Residents supported by Local Authorities in Local Authority, Voluntary and Private Homes.
2. Abbreviations: Sub = Substantially dependent; Mod = moderately dependent; Min = minimally dependent.
3 Percentage of all supported residents in local authority homes.

the fact that a much smaller proportion of the residents supported by the local authority are actually in local authority homes and that the county anyway supports fewer residents per head of the elderly population than do most other authorities. Sheffield was another low provider in 1970, but the dependency distribution of residents was not so far from the regional, county borough, or national distributions. On aggregate, Sheffield residents were _less_ dependent than residents elsewhere. [26]

To analyse the changing aggregate dependency of residents during the period 1970-77, I switch to the fourfold dependency classification suggested by the DHSS. The comparative figures are presented in table 3.10 for both Cheshire and Sheffield, and quite clearly indicate a marked increase in the overall dependency of old people's home residents between 1970 and 1977. There were some changes towards more dependent residents between 1970 and 1973-4 in Cheshire, and some marked changes in Sheffield over the longer six year period to 1976. The questionnaire items were, of course, completed by matrons and are subject to biases of various kinds, but even large biases would fail to account for such marked differences between the years. There are many plausible explanations for these changes; explanations which were discussed at length in chapter 2. The increasing numbers of elderly people, particularly the "old old", together with the expansion of substitute (and hence "admission-delaying") domiciliary, community and health

[26] The territorial need indicators for social services provision for the elderly computed by Bebbington & Davies (1980a) actually indicated that in 1975-76 Cheshire was a high spender relative to need and Sheffield incurred expenditure similar to that predicted by need.

Table 3.10:   Resident Dependency, Cheshire and Sheffield, 1970-1977

Survey Coverage	Date	Dependency Percentages[1]				Total no.of:	
		H	A	L	M	Res.	Homes
Cheshire							
(a) All LA homes	April 1970	21.3	10.1	38.2	30.4	1755	61
(b) All LA homes	Winter 1973-74	26.0	9.0	21.3	43.8	1764	64
(c) 15 LA homes[2]	November 1977	23.8	6.0	25.0	45.3	502	15
(d) 9 LA homes[2]	Winter 1973-74	28.8	13.5	21.5	36.1	274	9
(e) 9 LA homes[2]	November 1977	32.2	7.3	22.7	37.8	286	9
Sheffield							
(f) All LA homes	April 1970	20.9	9.7	32.4	37.1[3]	858	22
(g) All LA homes	Early 1976	47.4[3]	18.4[3]		34.2[3]	1292	34

Notes: 1. Abbreviations are H =heavy dependency; A= appreciable dependency;
          L= limited dependency; M= minor dependency. This classification
          is defined in the appendix to this chapter.
       2. These were the only homes included in the 1977 survey that were
          open in 1973-74. Of the remaining six, three were transferred
          to Cheshire in 1974 and three opened since 1974.
       3. From the tabulated figures of Booth (1980) it was not possible
          to compute the "HALM dependency classification" exactly; the
          47.4% of residents classified as heavily dependent is only a
          conservative estimate of this proportion. The figure should
          probably have been higher.

Sources: Printout of data from 1970 Census supplied by DHSS; questionnaires
          supplied by Cheshire County Council Social Services Department;
          Booth (1980).

services, have clearly played a part. Furthermore, the increasing use of
voluntary and private homes for local authority supported residents may
mean that only the more frail and dependent are accommodated in the authority's
own homes. (These dependency changes are discussed further in section 7.4.2).

3.6.3 Other Resident Characteristics   One or two other resident character-
istics may be included among the intermediate outputs of an old people's
home in so far as variations in these characteristics will help to explain
and be explained by variations in staffing levels, expenditure, and so on.
By their very nature, most of these intermediate outputs are also inputs
in the production of final outputs and some will clearly be outside the
domain of control of the producer. In the discussion which follows I shall
principally be concerned with the age and the sex of residents, and the
extent to which these characteristics, reliably recorded on numerous
occasions, provide a reasonable approximation to the dependency of residents,

and thus provide an intermediate output at one remove. If age and sex are
sufficiently closely associated with dependency, an intermediate output
indicator can be constructed for a number of years.

National data for resident age was collected for the first time by the
Ministry of Health in 1966 and tabulated in the Annual Report for that year
(Cmnd 3326, p.130). Prior to that date only residents aged under and over
65 were distinguished, by functional category (Not Materially Handicapped,
Blind, Deaf, Epileptic, Other Physically Handicapped, and Mentally Handi-
capped) and by sex. From 1966 onwards, it was not possible to calculate
sex ratios by functional category, but a finer classification of ages was
used: under 30, 30-49, 50-64, 65-74, 75-84, 85 and over. The dominant
trend has been the falling proportion of males in the total population of
old people's home residents; in 1951, 49% of residents were female, whereas
by 1965 this proportion had reached 65%. By 1978, the proportion had
grown to as much as 73%.

The changing age distribution of residents has been as marked as this
changing sex distribution. Detailed figures are only available from 1966
on a national basis, but even this period has witnessed a strong trend
towards a much older residential population. In 1966, 31.7% of residents
were aged 85 or over. By 1976 the proportion was 38.7%.[27] In this eleven
year period, the number of elderly people in the general population aged
85 or over grew by 66%, as compared with a growth of 97% in the number of
"old old" supported by local authorities in old people's homes. The ages
of newly admitted residents has followed roughly the same pattern. In
other words, the changing age structure of old people's home residents has
been caused both by the fact that residents are ageing and surviving within
the home and by the fact that new residents are generally older. In England
in 1967 for example, 27.8% of all elderly admissions to homes were aged 85
and over, as compared with 33.7% in 1976. If we compare the age structures
of new residents and all residents for these two years we can see that the
degree of similarity is slightly greater today than in 1967, with new

[27] The percentages aged 65-74, 75-84 and 85 & over in 1966 were 21.2%, 47.1%
and 31.7%. In 1976 the respective percentages were 17.3%, 43.9% and 38.7%.
No comparable national figures were available before 1966. The figures
collected by Townsend (1962) and Williams (1967) are reported using different
age classifications. However, general comments from before 1966 would suggest
that this changing age structure has been a feature of the whole post-war
period (Boucher, 1957, p.37; Ministry of Health, 1962, p.1; Williams, 1967,
p.16; and most post-war Ministry of Health Annual Reports).

residents more similar in age to established residents in 1976 than was the case in 1967.

The importance of the age-sex data of residents is the information it conveys about the probable dependency of residents, and thus the implications for staffing and for costs of homes. The relationships between age and dependency characteristics are well-known and are reported in some detail in most surveys of residents. Townsend (1962), for example, tabulates age by sex by incapacity (ibid, p.263). The 1970 Census data allowed tabulations by age and sex of resident continence, mobility, mental condition, capacity for self care, and overall dependency (DHSS, 1975, pp.116, 118, 120, 122, 124); and Plank (1977, tables 3, 9, 13) tabulates age and sex by mobility and capacity for self care. It is not necessary to repeat these findings here, but I shall use the Census results to construct a simple synthetic dependency index from age and sex data.

The index is constructed as follows: (a) from a reliable survey of residents obtain a cross-classification of resident dependency by age and sex; (b) collect comparable age and sex data for other years; (c) apply the dependency weights from (a) to estimate the likely numbers and proportions of residents with given dependency characteristics in the years covered by (b). The resultant index will probably give a conservative estimate of resident dependency in years following the dependency survey chosen at step (a), for, although the necessary data are not available, it is generally felt that residents within each age-sex group are more dependent today than they were in previous years, and it is well known that age and sex are poor predictors of dependency (Donaldson et al, 1980; Thomas et al, 1979, paragraph 6.6; Townsend,1962, p.451). However, given the relative ease of collecting age and sex information, this index gives much richer information to the policy-maker. I have attempted to construct dependency proportions for all residents supported by English local authorities for the years 1966-76 using the cross-classification material derived from the 1970 Census of Homes. All old people's home residents aged under 65 from the analysis (comprising 10.6% of all residents in 1967 and 7.3% in 1976) were omitted. In table 3.11 the estimated dependency proportions for 1966 and 1976 are compared with the actual proportions of 1970. Given our previous comparisons of figures for 1970 and 1977 for Cheshire, and 1970 and 1976 for Sheffield,

Table 3.11: Estimated Dependency Proportions, 1966 & 1976[1]

Year	Minimally Dependent		Moderately Dependent		Substantially Dependent	
	No.	%	No.	%	No.	%
1966[2]	39447	45.29	33110	38.10	14467	16.61
1970[3]	44614	44.77	39315	39.45	15726	15.78
1976[2]	62561	44.60	53620	38.23	24082	17.17

Notes: 1. Calculated using permanent resident figures only.
        2. Estimated on basis of 1970 figures.
        3. Actual figures (DHSS, 1975).

it would seem that this Laspeyre-type index underestimates the true
dependency distribution of residents. However, a more accurate predictive
relationship (between certain tabulated characteristics and dependency)
and more detailed annual collections of resident data would make such an
index as this potentially very useful for policy.

As well as the dependency, age and sex of residents, one or two other
characteristics may be included in our intermediate output concept, and
may be important in explaining variations in, for example, staffing levels
and the costs of care. As with resident age (and sex) the impact of these
factors will be felt through their association with dependency. For example,
the proportion of short stay as against long stay residents may be important.
The policy of central government is to encourage local authorities to accept
more short stay residents. However, short stay residents tend to be less
dependent; for example, in 1970 the proportions in the three dependency
groups in local authority homes were:

     permanent residents: 44.9% minimal, 38.2% moderate, 16.9% substantial
     short-stay: 51.9% minimal, 35.5% moderate, 12.6% substantial.
The differences were even greater for residents in voluntary homes (cf. DHSS,
1975, paragraph 4.29). Another factor of importance is the number of
admissions, and especially emergency admissions. I now turn to this inter-
mediate output.

3.6.4 Rate of Production   A final intermediate output indicator is the
rate of throughput, turnover, discharge, occupancy or admission of residents

to the home.[28]   In the context of old people's homes the throughput measure
has only limited usefulness, for one of the major determinants of throughput
is mortality. Mortality is itself related to the final outputs of the home
and should not be counted twice. I am therefore only interested here in
what might rather clumsily be termed "non-death throughput". The reason
for examining the rate of production at all is because these factors are
almost certainly related to resource inputs and to expenditure costs. Only
when an old people's home takes on a specific rehabilitative function will
we be interested in throughput as a (final) output in its own right.

The predominantly rehabilitative home has been fairly rare in the
British experience, and few residents in any home will return to their own
homes after admission. In 1970, only 1.8% of residents were short stay
residents, the remainder being "permanent" (DHSS, 1975, tables D41 and D42).
Despite the recommendations of the DHSS that local authorities should accept
more short stay residents, the percentage in 1978 was only 2.5% of supported
residents in English local authority, private and voluntary homes. However,
the percentage of all admissions to English old people's homes that were
designated "short stay admissions" has risen from 41.3% in 1967 to 47.9%
in 1976. Generally, through the entire post-war period, a high rate of
turnover has not been an objective of central policy and this has led
inevitably to problems of "silting up" (Davies et al, 1973). Nevertheless,
the problem is much less acute than it might have been had the Ministry of
Health pursued the policy enunciated in the National Assistance Act of 1948
of admitting the able-bodied elderly to homes (Davies, 1968, p.67).

We can distinguish at least four related concepts here - the throughput
(or turnover) of residents, the rate of admission, the rate of discharge,
and the rate of occupancy. The last of these is a "stock" concept, measuring
the number of available places occupied by residents on one particular day
(or averaged over all the days of the month or year). The other three are
all measures of "flow", with a distinct time element implicit in them. The

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[28] The distinction between the number of residents (and their characteristics)
on the one hand and the rate of throughput (etc.) on the other, is directly
analogous to the distinction made in the economic theory of the firm
between the level or volume of output and rate of production. The "rate-
volume model" has been extensively used in cost studies of, for example,
health and education services and will be used in our own cost studies
reported in Chapter 7.

rate of admission is defined as the number of people admitted to homes during a given period expressed as a percentage of all residents in the home (probably measured as the number on one day, or preferably, the average number over the same period). The rate of discharge is the percentage of all residents discharged from homes during a given period. Residents that have died in the home are excluded from this definition. Finally, the rate of throughput (or turnover) of residents is defined as the total number of persons who have resided in homes during a given period as a percentage of the average number of residents. Thus the throughput is defined as the number of discharges from homes during the period, plus the number of deaths, plus the number of residents still in homes at the end of the period. Related to the rate of throughput is the (average) length of stay of residents, and it is this latter concept which is more frequently tabulated and quoted in research studies.

The rate of occupancy is one of the most commonly quoted measures of the rate of production, and is one which has an important bearing on the costs of residential care (cf. chapter 7). On the 1st January 1960, the percentages of beds occupied were 95.0% in local authority homes, 95.6% in voluntary homes and 86.9% in private homes (Townsend, 1962, p.43). Ten years later the Census of Residential Homes data revealed that the occupancy rates were 96.9% in local authority homes and 90.9% in voluntary homes (DHSS, 1975, p.93). The occupancy of local authority home places has thus hardly changed at all. The same picture of constancy emerges from the data reported by Davies & Duncan (1975, pp.13 & 23) for local authority homes in Reading. During the period 1963-73, the occupancy rate fluctuated between 92.6% and 98.4% with no evidence of a long term trend in either direction. The 5% drop in occupancy rate for the voluntary homes is more significant, although it is not clear why this has occurred. Occupancy rates tend to vary between sectors (local authority vs private vs voluntary), by original function (former PAI vs purpose built vs former private residence) and between homes of different sizes (DHSS, 1975, pp.93-94; DHSS, 1976a, pp.10-13; DHSS, 1979, Appendix 1b).

The admission rate is defined here as the total number of persons admitted, expressed as a percentage of all residents in homes. Many admissions today are emergencies, and others are short-stay.[29] As with the occupancy

[29] These, like other intermediate outputs, are also non-resource inputs into the production of final putputs. See chapter 5.

rate, a comparison can be made between Townsend's findings for 1959 and the Residential Census data for 1970, as set out in table 3.12. On the whole, the figures speak for themselves. The percentages of residents transferred

Table 3.12: Admission Rates 1959-1973

| Area, Home Type & Date | Admission Rate(%) | Percentage Admitted From: | | | |
		Own Home	Hospital	OPH	Shelt. Housing
England & Wales, LA Homes, 1959[1]	51.0	58.9	26.5	14.6[2]	-
England, LA Homes, 1970[3]	30.3	47.6[4]	29.9	19.4	1.7
England, Vol.Homes, 1970[3]	20.0	71.3[5]	12.5	9.8	3.1

Notes: 1. Townsend, 1962, p.51.
2. From all other residential institutions.
3. DHSS, 1975, pp.106-108.
4. Includes 3.1% formerly resident in hotel, boarding house or lodgings.
5. Includes 7.4% formerly resident in hotel, boarding house or lodgings.

between old people's homes, and from hospital to old people's home, both increased markedly between 1959 and 1970, during a period when the overall admission rate fell considerably. The differences between voluntary home admissions and local authority home admissions were very marked in 1970.

As well as these national figures, we may also refer again to the tabulated figures for Reading given in Davies & Duncan (1975). Calculating the overall admission rate reveals considerable variation, the rate ranging from 26.5% in 1973 to 49.4% in 1965. However, it is interesting to note that this rate is positively correlated with the number of available places ($r = 0.172$, significant at the 0.005 level). The reason for this is simple: every time a new home is opened the number of newly admitted residents can and does increase. This correlation between places and admission rate, combined with the fact that the number of places in all local authority homes increased dramatically between 1959 and 1970 (from 69140 to 96763) clearly implies that the fall in the overall admission rate from 51% to 30.3% during this period hides a number of interrelated trends, and may underestimate the fall that would have been observed had no new homes been opened. In other words, the mean length of stay of residents has increased markedly (and see below). Admission rates have also been shown to vary between sectors (local authority vs private vs voluntary), by original function (former PAI vs purpose-built

<u>vs</u> former private residence), and between homes of different sizes (DHSS, 1975, pp.106-109).

One of the most important of the rate of production indicators for the overall planning and allocation of residential care resources is the <u>discharge rate</u>. As Davies (1968, p.68) argues, it is this rate which determines the extent to which homes are silted up. To some extent, death rates are exogenously determined, and to the extent that they are <u>not</u>, they have already been discussed in section 3.3.3 above. Here I am concerned with so-called "live discharges". There are unfortunately very few national studies of discharge rates - only Townsend (1962, p.51) presenting data for England and Wales, and Carstairs & Morrison (1971, p.31) for Scotland. Townsend reported a total discharge rate in 1959 of 48.1% with half (49.2%) of these being "live discharges". The Scottish figures indicate a discharge rate of 36%, once again with half (50.5%) of these being live discharges.

The fourth indicator of the rate of production discussed here is the <u>length of stay</u>. The findings presented above for the admission and discharge rates suggested that average length of stay had increased over the period since Townsend's study of 1958-59. In actual fact, it is not easy to test this suggestion from published figures for old people's home residents. This is mainly because the definition of length of stay should really cover periods of residence in <u>all</u> old people's homes, and not just the present home. The data that is available makes it clear that there is a considerable amount of transference of residents between homes, and also that many residents may spend short periods of time in hospital before returning to the home (see for example, Carstairs & Morrison, 1971, p.31; DHSS, 1975, p.108; Plank, 1977, table 30). The length of stay concept cannot be unambiguously defined, and apparently the only large study which attempted to get around this problem was that conducted by Plank (1977). Plank tabulates two length of stay concepts - the length of time spent in the resident's present old people's home, and the length of time since the resident was last living in his or her home. All other findings refer to length of stay since admission to the home, with short visits to hospital presumably not counting as discharge/admission. A second problem inevitably arises with a comparative study such as that attempted here: the time periods used to classify the duration of stay tend to vary between studies. To get around this problem we present the available evidence graphically,

assuming "straight-line" rates of discharge between points of observation. Published figures are re-computed so as to be expressed in terms of three monthly intervals, and the re-computed percentages are plotted at the midpoints of the published intervals. The figures are illustrated in Figure 3.1. The most immediately obvious characteristic of Figure 3.1 is the similarity between studies in the duration of stay. Comparing Townsend's findings for 1958-1959 with the Residential Census results for 1970 we actually see very little difference. The percentage of residents staying in the home for more than ten years has fallen slightly, from 10.4% to 6.2%, although the former sample included a few private homes where length of stay is rather shorter (Carstairs & Morrison, 1971, p.41). Average length of stay tends to be greater in voluntary than in local authority homes, and greater in local authority than in private homes (Castairs & Morrison, 1971, p.41; DHSS, 1975, p.22).

The differences in length of stay between types of home may reflect differences in resident dependency. Sumner & Smith (1969, p.123) quote a local authority official who felt that the length of stay was shorter because of the increased infirmity of residents. This may well be the reason for the differences between private, local authority and voluntary homes, for the aggregate dependency of residents tends to be higher in private than in local authority homes, which in turn is higher than in voluntary homes (cf. table 3.7). The comparison between 1958-59 and 1970 lends further weight to this argument, for residents were more dependent in the later year whilst average duration of stay had fallen.

3.7 Conclusion

The social policy and gerontology literatures on residential care have recently been fairly specific about the objectives of care and hence about the dimensions of final output. However, there is a dearth of empirical information on these final outputs for British homes which has been seen to make it very difficult to evaluate post-war developments in this area. In contrast, there is available a reasonable amount of information on the intermediate outputs of old people's homes which, despite their very much lower utility for the purposes of policy making, have allowed a number of interesting comparisons to be made. Some of these intermediate output concepts will also be used in the analyses reported in chapters 7 to 10 below. The examination of empirical evidence on both final and intermediate outputs has suggested a number of trends and changes which would be worthy of closer examination if further evidence came to light. I now move on to the definition, discussion and comparison of resource inputs (chapter 4) and non-resource inputs (chapter 5).

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Figure 3.1: Duration of Stay, 1958-1970

(Midpoint of published interval for) Duration of Stay in Years
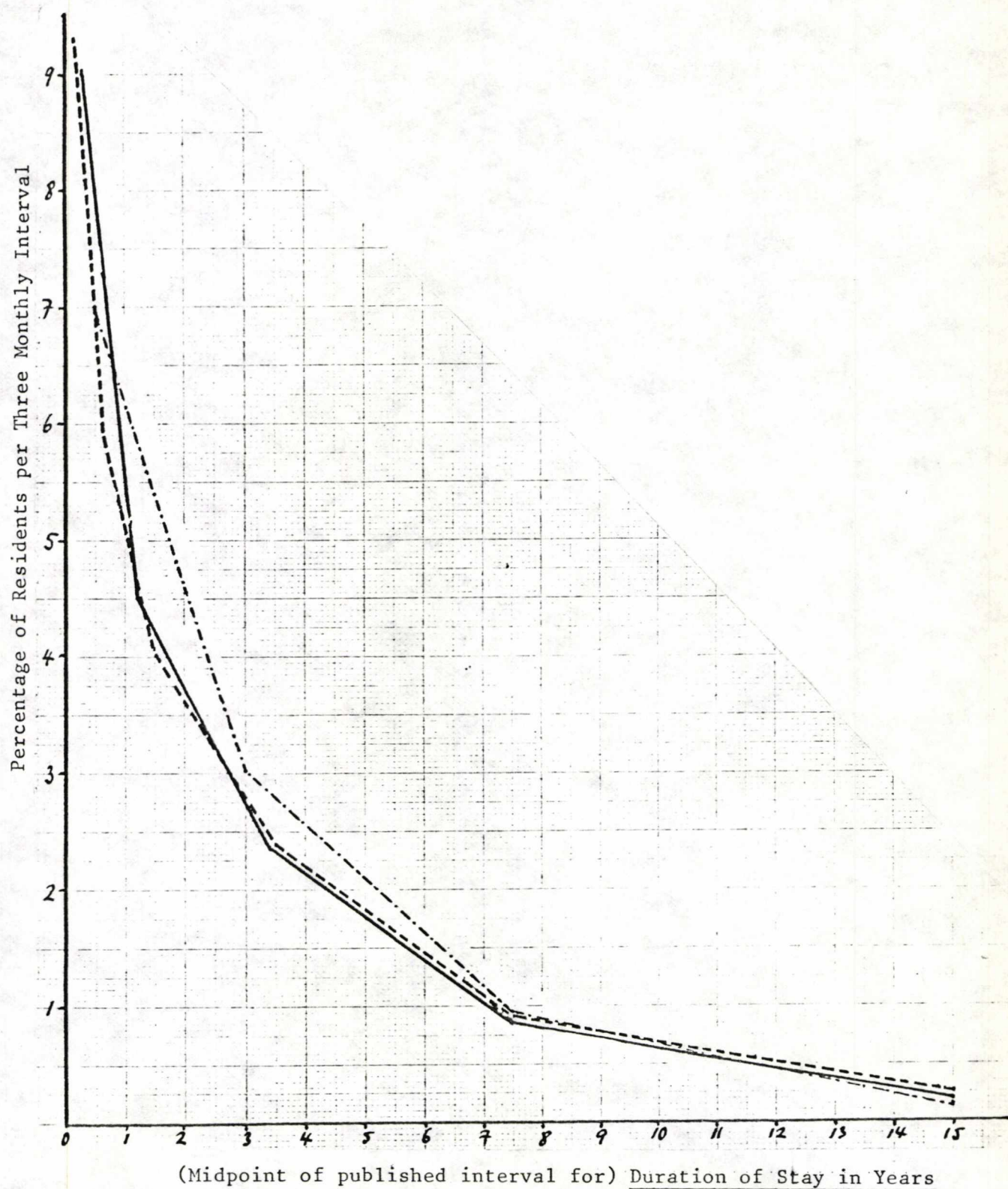
- - - - - England & Wales, 1958-59, representative sample of 173 LA, voluntary
         and private homes (Townsend, 1962, table 110, p.528).
————————Scotland, 1969, all LA, voluntary and private homes (Carstairs
         & Morrison, 1971, p.41).
—·—·—·—England and Wales, 1970, LA and voluntary homes (DHSS, 1975, p.22).

Duration of stay for elderly residents (aged 65 & over) only.

Appendix: DEPENDENCY GROUP DEFINITIONS

Heavy Dependency. A resident is heavily dependent is he/she has <u>one or more</u> of the following characteristics (A)-(F):

(A) Doubly or singly incontinent of faeces.
(B) Mainly or entirely bedfast.
(C) Severely confused.
(D) Needs help with feeding.
(E) Is either wheelchair bound or ambulant with help, and has <u>4 or more</u> of the following disabilities

    (i)   Needs help with washing;
    (ii)   needs help with bathing;
    (iii)   needs help with dressing;
    (iv)   needs help with use of WC;
    (v)   singly incontinent of urine;
    (vi)   mildly confused.

(F) Has <u>6 or more</u> of the following characteristics:

    (i) - (vi) in (E) above, and
    (vii) ambulant with aids <u>or</u> apart from stairs.

Appreciable Dependency. A resident is appreciably dependent if he/she is not heavily dependent and has <u>one only</u> of the following characteristics:

(G) Is either wheelchair bound or ambulant with help, and has <u>1, 2, or 3</u> of the following characteristics:

    (i) - (vi) in (E) above.

(H) Has <u>4 or 5</u> of the following characteristics:

    (i) - (vii) in (F) above.

Limited Dependency. A resident is of limited dependency if he/she is not heavily or appreciably dependent and has <u>one only</u> of the following characteristics:

(I) Ambulant only with help of others or wheelchair bound.
(J) Has <u>2 or 3</u> of the following characteristics:

    (i) - (vii) in (F) above.

Minor Dependency. A resident is of minor dependency if he or she is in none of the other three dependency categories, or equivalently if he/she has all of the following characteristics:

(K) Continent, <u>or</u> continent apart from isolated incidents, <u>or</u> singly incontinent or urine (only).
(L) Ambulant without help, or needs help with stairs, or ambulant only with walking aids (only).
(M) Mentally alert, or mildly confused (only).
(N) Able to feed self.
(O) Has 0 or 1 of the following characteristics:
    (i) - (iv) of (E) above.

<u>N.B.</u> Residents drop out of MINOR category if they have more than one of the characteristics marked "(only)".

Chapter 4   RESOURCE INPUTS

4.1 Inputs into the Production of Welfare Process

Two varieties of input are distinguished in the production of welfare
approach - resource inputs and non-resource inputs, and these have been
introduced and defined in chapter 1. Perhaps it is because there is an
assumption that non-resource inputs (staff attitudes, characteristics of the
social environment, resident experiences prior to admission, and so on)
are more important than resource inputs (staff numbers, home design, and
so on) that the latter are neglected in most of the literature. It may
well be that variations in the attitudes, assumptions and role perceptions
of staff have a greater effect on outputs than the nature of buildings or
money spent on current resources, but it is clear from a detailed study of
input-output relationships that resource and non-resource inputs are
related in ways that make it vital to consider them in conjunction with one
another. One reason is that they are likely to be correlated, and if so
one could not make an unbiased estimate of the effects of variations in
non-resource inputs merely by observing variations in outputs, without
taking into account the simultaneous variations in resource inputs.
However, the interrelationships between resource and non-resource inputs
are likely to be more complex, as will become clear from this and the
following chapter. To describe production relations accurately, it is
therefore necessary not just to allow for variations in both resource and
non-resource inputs, but also to examine the precise ways in which they
combine to produce final and intermediate outputs.

In this chapter I examine resource inputs, and move on to the various
non-resource inputs in chapter 5. Most of the resource inputs are
controllable by social services administrators (i.e. endogenous), at least
in the long run. The two principle resource inputs are staff and capital,
the former comprising all human and the latter all non-human resources used
to produce the various final and intermediate outputs described in the
previous chapter. Clearly it is difficult to separate out the influences of
these resources from those of, for example, the social environment. Such
separation, subject to the usual economic qualifications about rates of
substitution between inputs, can be effected in part through empirical
investigation, and this will be the subject of discussion, if not actual
estimation, later in the thesis. Labour inputs are discussed in section 4.2

under the headings of staff types (4.2.1), numbers (4.2.2), hours (4.2.3), and quality (4.2.4). Section 4.3 is concerned with the capital input, and is divided into a number of subsections each concerned with a different aspect of home design. The organisation of this chapter differs slightly from that of the previous chapter in that post-war changes and trends in the various resource inputs are not so rigorously separated from the conceptual and descriptive discussions.

4.2 Labour Inputs

The labour input into the production process has three basic components - the number of staff, whether paid or unpaid, in each of a number of staff categories; the number of hours worked; and the nature and quality of the services rendered during these hours. In this section we arrange our discussion around these three components. The first two components - the number of staff and the hours worked - present few problems of interpretation or measurement for the researcher. In contrast, the final component has many facets: these include the numerous and oft-voiced issues concerning the education, training, secondment, support and supervision of residential staff. The importance of this third component cannot be over-emphasised in a residential care context, or indeed in any human service context, but only recently have economists turned their attention to the "intensity of effort" and other quality variables in their studies of more conventional production processes. This has the unfortunate consequence that, whilst our basic production model and nomenclature have their roots in the economist's theory of the firm, much of the 'labour economics' literature and many of the production studies are of little relevance.

4.2.1 Staff Types and Tasks   The most common breakdown of residential staff is into three, or possibly four, major groups: supervisory, care, domestic, and office and secretarial staff. This classification was used, for example, in the Residential Census of 1970 (DHSS, 1970) and has been the basis for most central and local collections of manpower information. Of course, classifications are useful only to the extent that they reflect real divisions in the roles and tasks of residential staff. Imber (1977) followed up the Census collection with a detailed study of staffing in a dozen local authority old people's homes to examine:

"the extent to which the labels used in the classification covered
homogeneous groups of staff, ... to discover whether a distinction
could be drawn between domestic and care staff, ... (and) to
examine the feasibility of distinguishing two types of care staff -
those who provided nursing care and those who provided the social
care which is regarded as the major function of residential homes
and distinguishes them from either nursing homes or hotels"
(Ibid., p.1).

Her careful statistical analyses revealed that the distinction between
supervisory, care and domestic staff was meaningful, with domestic staff
keeping the home clean and tidy and care staff providing similar services to
residents and attempting to provide for their social and psychological
needs. Imber's detailed listing of tasks performed by these groups was
as follows:

(i)   Supervisory staff - "administering drugs, changing dressings,
      reading to residents, playing games with residents, organising
      social events, and paperwork".

(ii) Care staff - "washing clothes, washing residents, dressing residents,
      making beds and taking residents to the toilet, sluicing."

(iii) Domestic staff - "preparing food, cleaning, tidying and washing
      up" (ibid., p.26).

A re-analysis of Residential Census data for 200 old people's homes provides
further evidence of the validity of this classification schema. Variations
in the number of staff in each of the three major categories, and in the
corresponding staff-resident ratios, were found to respond in markedly
different ways to variations in resident characteristics, aspects of home
design, and the provision of "peripheral services". This analysis is the
subject of chapter 9. This division of tasks within the home has also
been confirmed by the DHSS (1977, chapter 9).

As well as these conventional, and in many respects essential, manpower
inputs to residential care, there are a number of other people whose input
into the caring process should not be ignored. The most common of these
is the input of medical and nursing expertise. At a time when the overall
and average dependency of residents of old people's homes is increasing
at a considerable rate, the medical and nursing input must necessarily
increase correspondingly, and general supervisory and care staff "are
not expected to provide the professional kind of health care that is properly
the function of the primary health care services" (DHSS, 1977a, paragraph
3). There are a number of arguments for and against residents keeping

their own general practitioners after entering a home (Greenfield, 1976).
On the one hand, residents' own GPs help maintain links with the community
and with significant others, and can reduce the risk of institutionalisation
and regimentation. At the same time, however, this practice can be very
inconvenient and does not allow an overall medical policy for the home to
be established. (Compare the policies adopted in the 1950s by local
authorities in both their converted Workhouses and newer homes as described
by Townsend, 1962, p.82, 127). Unskilled nursing care is usually provided
by the care staff of the home, but the increasing age and frailty of
residents now additionally necessitates a skilled nursing input. Depart-
mental recommendations provide for outside professional nursing assistance
from district nurses and other primary health care nurses employed by Area
Health Authorities. In general, British old people's homes are not expected
to employ fulltime medical or nursing staff, nor are they usually of
sufficient size to warrant such an input. (Compare the American position
as reported by, for example, Manard, Woehle and Heilman, 1977). The
issue of nursing qualifications for old people's home staff is discussed in
section 4.2.4. Additionally, most homes will provide specialised health
care services such as dental care, chiropody, remedial and psychiatric
aid. Almost invariably, these will involve occasional visits to the home
by suitably qualified specialists.

A number of the larger American nursing homes employ an "activities
director" - less specialised than trained recreational or occupational
therapists, but more common (Manard et al, 1977). The findings of the
Wessex group that the provision of recreational material can substantially
raise resident engagement levels and that engagement is particularly
enhanced by the presence of an activities organiser lends support to requests
for such "psychosocial staffing" (Lunt, Felce, Jenkins & Powell, 1977;
and see McClannahan & Risley, 1975). Other manpower inputs to
residential homes include community-based social workers, therapists,
chaplains, voluntary visitors (as opposed to voluntary workers who are
included in the above categories), residents' significant others, and even
gerontologists (Stathopoulos, 1977). Clearly, the number of staffing
categories that can be distinguished is almost infinite. In a practial
research context one must therefore balance two countervailing needs: the
need for a simple breakdown to ensure generality and computational

feasibility, and the need to distinguish manpower groups whose roles and tasks are sufficiently different for their impact upon outputs to differ either qualitatively or quantitatively.

4.2.2 The Number of Staff   The easiest component of the manpower input to measure, in principle at least, is the number of staff in the home. Most published statistics work in "whole time equivalent" staff member units. National surveys of local authority, voluntary, and private homes revealed considerable variation in staff-resident ratios between homes and between areas (Carstairs & Morrison, 1971; DHSS, 1975; Williams, 1967). Part of this variation at a single point in time can probably be explained by reference to certain historical traditions, practices, and "accidents of policy", but recent studies suggest that much the greater part of the variation is attributable to variations in resident and home characteristics, and in the services offered by the home to its residents and to the community in which it is situated (see chapter 9).

A number of writers have stressed the importance of staff numbers, or staff-resident ratios, for the determinants of either the quality of care (an intermediate output) or the quality of life of residents (final output). Linn (1974) found that the number of staff hours was related to the quality of care, and Anderson, Holmberg, Schneider & Stone (1969), Linn (1974) and Linn et al (1977) also found that the number of staff hours per resident had a similar effect. Curry & Ratliff (1973) argue that staff-resident ratios will be a determinant of institutional milieu, and hence of resident well-being. As the staff-resident ratio decreases, more formal and less personal procedures of care are adopted, so that the environment becomes "more total" in the Goffman sense. Residential home staff feel that they should have more time to talk to residents (Neill, McGuinness & Warburton, 1976). The absence of staff forces senior and direct care staff to devote more time than intended to domestic activities and less attention to residents' psychological needs. However, there is no scarcity of evidence that in some related institutions the staff-resident ratio per se has little effect on resident management practices (Grant & Moores, 1977; Harris, et al, 1974; Tizard et al, 1972). Related is the evidence that the presence of more members of staff does not necessarily improve the inter- action with residents, since staff tend to talk with one another, although some of this may be discussion from which residents gain (Morris, 1969;

Thormalen, 1965; Tizard, 1964). What seems to be more generally the case is that any one resident is spoken to more often as a member of a smaller than of a larger group. Lipman & Slater (1977) take a quite different line. They recommend that the range and scope of staff-resident interaction should be limited in order to maximise the opportunities for resident initiative and to reduce resident dependence upon staff. Their design recommendations for residential homes thus attempt to reduce the number of "chance" resident-staff interactions and to minimise staff surveillance.

The conflicting opinions that emerge from even such a small number of studies serve to emphasise the hazards of relying upon input indicators when assessing residential care. Although empirical research must distinguish between the effects of the number of whole time equivalent staff, the total number of staff per se (resident confusion may well be exacerbated if the number of different staff in frequent contact is excessive), the effective number of staff (or staff hours) during peak periods of the day (King, Raynes & Tizard, 1971), and probably also the rate of turnover of residential staff, particularly those in closest contact with residents (Molberg & Brothen, 1977; Sinclair, 1971; and see chapter 10 below), an assessment of how they affect the quality of life must put them into a context of more complex argument (see below).

A number of trends can be discerned from available figures on staffing levels for the post-war period. It is not however the intention of this thesis to present an historical analysis of residential care services for the elderly and so these trends will only be considered briefly. The first of the annual collections of national data on staff was conducted by the Ministry of Health in 1966 and figures on staffing numbers and character-istics have been collected and published ever since (albeit in a variety of forms which sometimes make comparisons difficult). The available figures[1] quite clearly indicate a marked increase in the total number (whole time equivalent) of staff employed in homes, an increase which made possible the increase in intermediate output (as measured very crudely by the total number of residents) over the corresponding period (see chapter 3). Local

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[1] See DHSS (1975, pp.84-5), DHSS (1978, table 8), and the various 'Feedback' publications of DHSS.

government employment levels have increased in virtually all services in
the post-war years (Howick, 1977). For our purposes we are rather more
interested in the ratios of staff to residents than in   the numbers of
staff alone. Rowntree (1947) reported a ratio of 20 residents to 1 staff
member in one large Public Assistance Institution in London, and a ratio
of only 3 to 1 in another (p.66). Voluntary homes were also frequently
understaffed, some housing over 10 residents to each staff member, even
when the needs of residents were great (p.68). Rowntree recommended that a
ratio of more than 5 to 1 for small (30-35 bed) homes was unnecessary,
and recommended a maximum of 7 or 8 to 1 for the 400-500 bed Institutions.
Since 1946, the actual and recommended ratios have changed somewhat, both
through necessity (with the increasing frailty of residents) and in response
to demands for better quality care. Townsend's findings for the end of the
1950s decade indicated an average ratio of 3.2 to 1 for smaller purpose-built
and converted homes run by local authorities, but an average as high as 8.5
to 1 for the smaller (less than 100 bed) former Workhouses. Williams (1967)
computed the ratios for care staff only (for 1963) and found it lowest for
local authority homes (6.1 to 1) and highest for voluntary homes (7.4
to 1). Since that time, voluntary homes have had pervasively higher numbers
of residents to each care staff member than have local authority homes.
By 1970 the ratio of residents to care and supervisory staff was 4.7 to 1
in local authority homes and 5.3 to 1 in voluntary homes (DHSS, 1975), and
were reported to be 3.15 and 6.3 respectively by 1975 (NCCOP & Age Concern,
1977, p.11). Similar differences can be deduced from the tabulated
ratios in DHSS (1979, appendix 3). There are many reasons for these
differences between local authority and voluntary homes, and for the
tremendous variation in staff-resident ratios within any particular 'group'
of homes at any one time that has been frequently noted. Chapter 9 of
this thesis examines some of these reasons. A further trend has been the
increase in the numbers of night staff, both in response to changing
resident needs and in accordance with legislation (NOPWC, 1966; DHSS, 1975;
DHSS, 1979). However, despite all these increases, the level of satisfaction
with staffing numbers and ratios, as expressed in official and academic
reports has not improved; dissatisfaction with staffing levels has remained
high throughout the period (inter alia see Cmnd 3703, paragraph 416; DHSS
1973a; DHSS, 1976c; DHSS, 1979; Paige & Jones, 1966; Townsend, 1962;
Williams, 1967).

4.2.3   Staff Hours   The number of staff hours is generally automatically
taken into account in the computation of whole time equivalent staff
numbers. However, the labour economics literature has stressed the importance
of staff hours as a separate input indicator, and the number of hours, and
their distribution between different staff members, is clearly important in
the residential care context. The number of different staff members in a
home has been argued to be related to resident confusion and disorientation
(see below), and the greater the proportion of part-time staff the more
difficult it will be to establish meaningful staff-resident interactions.
It is therefore disquieting to record the dramatic increase in part-time
staff employed in old people's homes, particularly in the last fifteen
years. These 'humanitarian' concerns have been marked by 'organisational'
concerns: the increasing employment of part-time staff in old people's
homes has probably helped to increase the real costs of care, because of
the fixed costs associated with employment (DHSS, 1978b, pp.3-4), and the
increasing use of 'split shift' systems has incurred the wrath of trade
unions and drained the vitality of staff (Townsend, 1962, p.123). In 1963,
the Williams Committee survey found that 18% of employees in local authority
homes, and 19% in voluntary homes, were part-time staff (Williams, 1967,
p.44). By 1970, the percentage of all employees who were part-time staff
was 34% in local authority homes and 28% in voluntary homes (DHSS, 1975,
p.140). Turning to whole time equivalent (wte) staff numbers we can pick
out one or two further trends. For example, whilst the wte numbers of
supervisory and care staff increased by 53.5% and 68.9% respectively between
1966 and 1973, the total number of different supervisory and care employees
increased by 54.8% and 84.4% (DHSS, 1975, p.85). These figures are all for
England and Wales; in England alone, part time staff in old people's
homes (excluding wardens and their deputies) accounted for 34.7% of the wte
staff input in 1966 (DHSS, 1975, p.85), but 52.2% a decade later (DHSS,
1977d).   The trend towards more and higher proportions of part time staff
is thus very marked and can be attributed to the progressively shorter working
week introduced since the war, coupled with the difficulties of recruiting
more and more suitable full-time staff, and to the increasing frailty of
residents and the concomitant need for more staff at 'crisis points' (only)
during the day.[2]

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[2] Note, however, that the number of hours worked by each part-time staff
member has increased over time. In 1966, the average working time of a
part-time member of the care staff was equivalent to 0.62 of a wte staff
member. In 1973 the proportion had increased to 0.72 of a wte staff member
(DHSS, 1975). Homes have also evolved quite complex shift systems which
make labour available for special purposes at the time it is most needed.
This can sometimes mean that staff can be working part-time and yet there
is still always a familiar face associated with a particular set of tasks
in the daily routine.

4.2.4   The Quality of Staff and Labour Services   The quality of the care
services that staff render to residents during their working hours is clearly
the crucial component in any discussion of the labour input.   "More than
buildings, furniture or amenities, it is the quality of the staff that
determines what life is like in the home" (Huws Jones, 1966, p.42) and "in
determining the contentment or otherwise of residents" (Rowntree, 1947,
p.65).   Quality is not only the most important aspect of the labour input
it is also the most difficult to conceptualise and measure.   Conceptually,
it is very difficult to distinguish between the quality of labour and the
quality of care services, for the former can only really be defined by
reference to the latter.   Four approaches to the problem of measuring staff
or labour service quality may be distinguished: focusing on the quality
of care per se, the tasks performed by staff, the environment or social
milieu created by staff, and characteristics of staff.

(a)   Quality of care approach.   Quality of care measurement generally
concentrates on a handful of resource and non-resource inputs, such as staff-
resident ratios, the number of residents per room, the state of repair of
the home, the activities available, and aspects of regime.   The measures
are a mélange of variables of quite different degrees of causal priority in
the production of welfare.   They appear to be of both doubtful validity and
limited utility.   They cannot be employed in place of quality of life
variables as final output indicators, and are of little use as predictors
of final output variations because the quality of care scales aggregate the
various inputs in such a way as to be quite useless for policy purposes.
The first attempt to assess quality of residential care was probably made
by Townsend (1962) and at the time his approach represented a significant
departure from all that had gone before.   Our better understanding of
residential care and the processes of production of welfare render the
approach obsolete today.   As used in most studies, the measures are a ragbag
of variables purporting to reflect influences on the quality of care, not
a set of indicators whose properties as measures of important aspects of
caring behaviour are known, and systematically covering the most important
dimensions of caring behaviour.   They are of very limited value indeed.

(b)   Tasks and opportunities approach.   My discussion of staff types
(section 4.2.1) included a listing of some of the tasks performed by
supervisory, care and domestic staff.   Indirectly, a listing of tasks in

this way gives some indication of the quality of caring services that staff
are able to render to residents. There are two strands to this argument.
Firstly, a listing and "frequency distribution" of the tasks performed by
staff gives an indication of the caring services rendered to clients.
For example, a predominance of "social tasks" over domestic chores may
allow one to make inferences about the quality of caring by care staff,
and a comparison of this predominance between two homes may allow further
inferences to be drawn. Imber (1977) listed twenty "staff tasks" and
recorded the frequency with which each was performed. Forms completed by
matrons (for all staff) indicated that 81% of residential staff in
Authority A never read or wrote letters for residents, or did so less than
once per week, that 81% played games with residents less than once per
week, or never, and that 88% organised or took part in social events with
the same frequency. The corresponding percentages for staff in Authority
B were 88%, 79% and 92%. A comparison of this form may be meaningful in
assessing the quality of the manpower input and may be a reasonable, if
rather crude, basis for a quality measure. The second strand to the argument
concerns the opportunities for staff "to individualise care for all residents"
(Walton, 1978). Without adequate administrative and domestic support, care
staff will be unable to concentrate their efforts on primary care functions.
A number of the staff interviewed by Patterson (1973) in her ethnographic
study of six British old people's homes complained that they had insufficient
time to devote to "doing proper care" and as a result "staff came to view
residents as the objects upon which the lists of duties had to be performed
in a given time" (ibid., p.354).[3] What is particularly worrying is that
staff opportunities for "proper care" will become progressively fewer as
resident dependency increases and more complex tasks are required. Evidence
of this was recently provided by the DHSS (1979, paragraph 9.4) study of
homes in London. As Walton (1978) argues, it is necessary to combat the
"survival syndrome" whereby the major emotional and physical resources
of the staff are expended merely to survive the day, leaving no resources for
"doing proper care".

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[3] "A high proportion of local authorities regarded staff in residential
accommodation under the National Assistance Act as performing a social
work function subsidiary to their main employment" (Younghusband, 1959,
paragraph 351).

(c) Social environment approach. Some of the quality of care
measures that have been used have distinguished one or more milieu, ambience,
climate or environment dimensions. Regime has perhaps been the most
frequently mentioned dimension. Another approach to the assessment of
staff quality might therefore be to examine the social climate within which
the services are rendered to clients, particularly since climate will be
partly, or perhaps mainly, fashioned by the staff themselves. Indeed, we
can clearly see how each of the aspects of the labour input already
distinguished in this chapter can impinge upon social environment. For
example, the classification of staff in both name and task can greatly
influence certain aspects of apparent and actual regime (Davis, 1979; Thomas
et al, 1979). Thomas found that homes varied considerably in the emphasis
they placed on cleanliness, tidiness and routine (ibid, paragraph 6.27) and
the extent to which their tasks encouraged resident dependency. Over-staffing
can clearly encourage dependency (ibid, paragraph 6.28). The hours worked
can, as already noted, be important in the determination of caring continuity
and interactions (and see DHSS, 1976 c, p.13), and the concentration of
staff at "crisis times" may be important in discouraging independence.
Whilst all of these factors and influences are important, it would be wrong
to subsume them wholly under the staff quality heading or, equivalently,
to list all important aspects of staff quality under the social environment
banner. There are many more facets to the manpower input quality dimension
than the creation of the caring milieu, and the social climate of the home
is a product of a number of other factors in addition to the characteristics
of residential manpower. It is thus preferable to maintain the distinction
between the two concepts and to examine separately their respective
impacts on the welfare of residents and the outputs of the home generally.
However, the causal processes that determine the quality of the labour
input - and therefore, inter alia, features of the social climate -
should be analysed even though the over-ready identification of the one with
the other in much of the literature makes it difficult to find criteria
of the quality of labour input (its "marginal productivity" in the typical
resident's own production of welfare) that are completely independent of
social climate. Social environments are discussed in chapter 5.

(d) Staff characteristics approach.[4] The other main approach to
measuring staff quality is to look at levels of training, education and
experience of staff, for there can be little justification for training
residential staff if they do not improve the standards of care and the quality
of life of residents. The factors to consider are training and qualifications,
staff attitudes and orientations to care, and staff experience.

It is well known that there is a severe shortage of suitably qualified
staff in the personal social services,[5] and especially in old people's
homes. Staff returns made annually by local authorities to the DHSS now
give comprehensive information on all supervisory and care staff employed by
old people's homes. The returns indicate that only about 3% of supervisory
and care staff held the Certificate in Residential Social Work issued by the
CCETSW, whilst 35% held a nursing qualification.[6] Whilst the present level
of training is bad, it nevertheless represents a significant improvement
on earlier years. The Williams Committee (1967) found that only 2% of
care staff in 1963 had taken the 14-week course run by the NOPWC, and
a further 13% held a nursing qualification. (The latter proportion was much
higher in voluntary and private old people's homes.) In the first years
after 1948 there was simply no recognition of the fact that care of the
elderly "required special personal qualities of sympathy and understanding
and some knowledge of administration and psychology" (Parker, 1965, p.111).
The gradual recognition of these qualities led to the establishment of the
Younghusband Committee in 1956. The Committee reviewed the training schemes

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[4] I am not concerned here with staff characteristics such as age, sex and
marital status. These characteristics have of course been recorded in
previous studies (e.g., DHSS, 1975; Townsend, 1962; Williams, 1967) and
are recorded in staff returns from local authorities to DHSS. They will
be of use later in this thesis (see chapters 9, 10).

[5] This remark should be qualified somewhat, as there are good arguments for
believing that in some areas of social work (and particularly fieldwork)
there has been too much emphasis placed on trained staff and too little
'rational' use of social work assistants (Bessell, 1978; Cypher, 1974;
DHSS, 1976b, paragraph 10.5; Judge, 1978, p.159 et seq.).

[6] It is held that a higher proportion of old people's home staff have
nursing qualifications than do the staff of hospital geriatric wards!

currently in operation, of which there were precious few and which were
pretty rudimentary (see, for example, Townsend,1962, p.125), and made
recommendations for future training schemes. "In the late 1950s local
authorities began to demand trained social workers. This contrasted with
their former preference for local people trained in something called the
university of life" (Younghusband, 1978a, p.16). In the next twenty years
more training courses for residential home staff were established, spurred
on in particular by the Williams Committee's recommendations, but the number
of trained staff is of course still very small. The development of training
schemes for the staff of residential establishments is well described by
Younghusband (1978, volume 2, chapter 13). As well as these formal training
schemes, most authorities and homes adopt informal on-the-job training
schemes, although these often leave something to be desired (DHSS, 1979,
chapter 9). Unfortunately, because recruitment of staff to work in old
people's homes is such a tremendous problem it is unlikely that local
authorities will readily second staff for full-time training.

One controversy that has pervaded the whole post-war period concerns
the appointment of supervisory and care staff with nursing qualifications.
The government's position was set out in a recent Memorandum and expressed
reservations about residential home staff with such qualifications:

> "The effective and successful running of old people's homes
> depends to a large extent on the degree of knowledge and professional
> skill of the head of the home. ... Although nurses often have a
> considerable contribution to make when they hold senior posts in
> old people's homes, they will need additional training and experience
> to acquire the range of skills needed for management in residential
> care. ... All staff engaged in the residential care of the elderly
> are likely to need some form of training to equip them for the
> wide range of tasks involved. Suitable training can not only
> significantly increase knowledge and enhance existing skills but
> also enable staff to extend the services provided by visiting
> professionals" (DHSS, 1977a, paragraphs 32, 33).

Some of the British discussion of social environments in old people's homes
suggest that a head with a nursing background often promotes a model that
gives less emphasis on residents' psychological needs,being unnecessarily
authoritarian and domineering (Harris, 1977; NCCOP & Age Concern, 1977,
p.12; Residential Services Advisory Group, 1975; Townsend, 1962, p.85). On
the other hand it is sometimes agreed that matrons or other staff with
nursing qualifications are becoming increasingly valuable as the frailty
of residents increases and as health care providers become increasingly

reluctant to accept the elderly as their responsibility (see, for example, Boucher, 1954; DHSS, 1979, chapter 9; Lawrence, 1977; NCCOP & Age Concern, 1977; NOPWC, 1966; Townsend, 1962).

Despite these numerous arguments and viewpoints regarding the efficacy of suitable training for residential staff, there is very little empirical evidence to draw upon. King et al (1971) found that scores on their child management practices scale (an indicator of environmental milieu in children's homes) were related to the training of the living unit head, but Kart & Manard (1976) found no evidence of a relationship between the proportion of "highly trained professionals" in American nursing homes and either the quality of care or the level of final output. This virtual absence of empirical evidence is disappointing but the wealth of qualitative and anecdotal evidence from social work administrators, educators, teachers and supervisors serves to emphasise the pressing need for better trained residential staff. Another aspect of the training question - the support given to care staff - is also emphasised. Without adequate support the knowledge and skills acquired in training can very easily become redundant.

One of the essential purposes of social work training, and one of the central aims of most organisations concerned with the elderly, is to foster positive attitudes towards the elderly and to help dispel the negative stereotyping of the elderly that otherwise dominates.[7] It may therefore be valid to assess the quality of manpower services in terms of staff attitudes towards the residents and towards the elderly in general. The Personal Social Services Council review of residential care succinctly sums up the importance of positive attitudes:

"... the attitudes staff have and reveal towards residents set the tone for the pattern of life in a home. They also call forth corresponding attitudes from residents towards them and each other"(Personal Social Services Council, 1977, p.51).

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[7] "Old people are seen by society in general as: valueing companionship more than sex, being old fashioned, not caring much about their appearance, being neglected, being in only "fair" health, and being narrow-minded". (Atchley, 1977, p.72). Skoglund's (1978) recent study of attitudes toward the elderly in Sweden provides a good overview of the relevant literature.

"Personal relationships flourish or flounder on the attitudes of people. ... The pattern and activity of daily life will reflect the success of personal relationships - both those between staff and residents, and those between staff themselves" (ibid, p.50).

Residential staff attitudes towards their work and towards the residents as individuals will determine the general atmosphere and regime of the home, the attitudes the elderly hold about themselves and about the home, the quality of the care services rendered to the residents, the degree of "individualised understanding", and, ultimately, the quality of life and general outputs of the home (Brearley, 1977; DHSS, 1979; Romaniuk, Hoyer & Romaniuk, 1977; Townsend, 1962, p.146). Attitudes are known to be related to the residential task and position in the home, to the amount of education and training, and possibly also to age and length of experience in residential and social care (Gubrium, 1974; Kosberg, Cohen & Mendlovitz, 1972).

This brings us finally to the experiences of residential home staff. Townsend (1962, p.89, 129-31) found that the attitudes and practices of staff were greatly influenced by their background and experiences and more recently Whitton (1976) complained that matrons "are still recruited from allied fields rather than from the ranks of the care staff. This is mainly because the work of the care staff gives them little chance to train for more senior positions. Moreover, it attracts few people of sufficient calibre in the first place". Furthermore, old people's homes have been particularly hampered by high turnover and wastage rates among staff, which have depressed the fund of available skills and experiences. (Chapter 10 returns to this problem.)

One would expect relationships between the personality, attitudes, and training of care staff and the quality of the labour input. In fact, the evidence is ambiguous. However, throughout social science it has proved difficult to link personality, attitudes and behaviour without developing a precise theory of the way contextual factors affect the processes. As is argued elsewhere in this thesis, the pressure of social environment often seems to overwhelm personality as a determinant of behaviour (Milgram, 1965; Mischel, 1973). This is particularly so when the variations between units in the incidence of care staff with differences

in a characteristic are not great. Perhaps the proportions of care staff trained and the personality variations have therefore been less important than would have been expected from the emphasis given to them. More important may have been cultural or age differences that reflect varying labour markets - differences, that is, that are not due to random variations among individuals within homes, but are the systematic effect of powerful and general factors influencing the characteristics of the staff of the home as a whole.

In the final analysis the quality of the manpower input (as reckoned through the quality of caring) cannot be divorced from the quality of resident life. Only by looking at the influence of the various characteristics of the manpower input on the outputs of the residential home, particularly the well-being of residents, can we accurately and reliably assess the true quality of the services rendered by residential staff.

4.3   Capital Inputs

In conventional economic usage, capital is the hold-all term used to denote all physical, man-made aids to production. In the residential care setting there are literally hundreds of capital items, ranging from the building itself to the cutlery utensils in daily use. Correspondingly, perhaps, there have been many studies of the physical structure, design and facilities of residential homes for the elderly - a depth of interest which partly reflects the fact that the capital input is the most visible and tangible aspect of residential care, and the one that has historically aroused most indignation and discontent. For instance, some argue that design can create a living situation which offers residents a choice about how to spend their time or one that effectively forces them into a fixed pattern of life (Cheshire County Council Social Services Department, 1976). Others argue that residents can be confused by endless corridors, complicated shapes and colours and repetitive design elements (Olsen, 1978). The capital stock of local authorities effectively constrains, in the short-term at least, the number of people in residential care, particularly since the length of stay is determined more by mortality rates than by

central or local policies. Inheritance of public assistance institutions in 1948 effectively determined the character of the capital stock of most authorities for years to come and was a significant cause of territorial variations in levels and standards of provision (Davies, 1968). Given the slow rate of expansion and transformation of capital stocks, some authorities today are still constrained by decisions reached well over thirty years ago, and others are unable to afford to open the homes so carefully designed and erected during the mid-1970s. "Bricks and mortar outlive not only the philosophy behind their provision but their original use. Adaptation to new ideas or improved knowledge and to changes in the age or condition of those accommodated is difficult because most buildings lack flexibility" (DHSS, 1976c, p.16). The importance of the capital input is not in any doubt, therefore, but we should bear in mind that such resource inputs are means to an end and not the ends themselves.

In this section I am predominantly concerned with home design and its impact upon life in the home and resident well-being. I shall list a number of features of capital and home design, explain very briefly what is meant by each, and almost as briefly discuss previous research findings on the impact of each upon concepts not completely unrelated to final outputs. First, however, it is useful to summarise some of the more important changes and policies since 1945 (section 4.3.1). More detailed changes and policies are discussed in section 4.3.2, and summary indicators in 4.3.3.

4.3.1   The Developing Capital Stock   Central government control over the capital stock of local authorities has been exercised in a number of ways, and particularly through loan sanctions and design recommendations. Control of this input, indeed, follows the modes of control generally adopted by the Ministry of Health and DHSS, as described above (section 2.2.11). It is not my intention to detail these modes of control, except where they are directly relevant for understanding or illustrating the production of welfare in old people's homes.[8]   In fact, central

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[8] In particular, loan sanctions and their use are not described here. Useful descriptions and criticisms are provided by Bacon (1979), Davies (1968, p. 93 et seq.) Griffith (1966, pp.90-91, 433, 479-488, 551), Judge (1978, 1979), Layfield (Cmnd 6453, pp.237-43). In the early 1970s, half the capital expenditure on community health services and personal social services was spent on old people's homes. This proportion has steadily decreased since that time.

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government control of local authorities exercised through loan sanctions has been used as a more general instrument of central control than merely a check on home design and capital stock. This has been the most direct and important mode of effective central control but has not necessarily been the most useful policy instrument for capital stock per se. Loan sanction has more closely followed the fortunes of the British economy than the needs for investment in local personal social services and has had a distortionary effect on service development. This has led a number of commentators to suggest a much greater degree of local autonomy (Expenditure Committee, 1974, paragraph 50; Klein, Buxton & Outram, 1975; McCreadie, 1975).

At the time of the Nuffield Foundation Survey, reported by Rowntree (1947), whose findings probably reflected the attitudes underlying the National Assistance Act, the great majority of elderly people in care were housed in Public Assistance Institutions. Rowntree found that these institutions were "structurally inadequate by modern standards", affording little improvement over the workhouses they were supposed to replace following the Local Government Act of 1929. Aneurin Bevan labelled them "evil institutions" and the guidelines laid out in the National Assistance Act represented a strong reaction away from these Institutions and towards the best homes at that time, which Rowntree felt were the small voluntary homes. The Act thus recommended a complete contrast in design, with homes for about 25 to 30 residents and with a minimum of regimentation and "institutionalism".

In the ensuing years, the design of newly constructed or converted homes has evolved in response to Ministry advice, at first couched in the loosely worded and oft-changing annual reports of the Ministry of Health, and later clearly and concisely set out in Building and Design Notes. These in turn have been influenced by a succession of surveys and research reports by various social service agencies and academics. Most of the homes for the elderly opened in the first 6 years after 1948 were converted private dwellings which, as Townsend (1962) found, had quite interesting histories - "owned by millionaires, a peer of the realm, a wool magnate, an army general and even a town clerk". At a time when building materials were in very short supply, and when factories and houses were needed, it was not surprising that purpose-built homes were few

and far between. Indeed by the end of 1952 only 11 purpose-built homes
had been opened, which the Ministry claimed was "commendable progress"
in their Annual Report of that year. Seventeen purpose-built homes were
opened during 1953, and the Ministry's description was changed to
"conspicuous success".[9] Unfortunately, the political pressures at the
local authority level to close the former public assistance institutions
meant that many authorities "rushed hither and thither, delighting estate
agents and buying who knows how many pigs in pokes", and then converting
them into residential homes (Beglin, 1965, p.200). As one might expect,
these converted premises were often remotely located in the suburbs or
outside towns and were architecturally rather grandiose and overwhelming.
Far from offering the"poor elderly, in the winter of their lives, ... a
little stateliness and luxury" (Kemp, 1973, p.496), they overwhelmed
and depressed them.

The increasing demand for residential accommodation, in the form of
both overt demand rising as a result of reduced stigmatisation and covert
demand or need being uncovered by the diligence of the rejuvinated National
Assistance Boards, forced a review of policy. The suitability of many
of the converted premises was also being questioned and further suitable
premises were increasingly hard to find, but capital restrictions imposed
by the Government discouraged new building. Ministry of Health Circular
3/55, issued in 1954, recommended that homes for up to 60 residents be
built with slightly smaller living rooms and more multi-bedded rooms,
particularly in densely populated areas where the need for care was
greatest and where good sites and suitable private dwellings were hard to
find. But, no sooner had these new recommendations been accepted and acted
upon than a quite contrary piece of advice was offered in the Ministry of
Health Report of 1957. This Report recognised both the difficulty in
creating a homely atmosphere in the newer, 60-bed homes and the doubtful
value of 4-, 5- and 6-bedded rooms for the very infirm.

There was thus a swing in policy back towards smaller homes with a
higher proportion of single bedrooms. Shortly after this pronouncement,

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[9] By the end of 1952, a total of 580 new homes had been opened and a
further 19 were opened in 1953.

the government greatly eased its restrictions on capital expenditure and
in November 1958 invited local authorities to submit projects for loan
sanctions. Loan sanction for welfare services alone rose to £9 million
in 1961-2 as compared with an annual average of £4.2 million for health
and welfare projects together for the period 1954-60 (Sumner & Smith,
1969, p.41). The number of purpose-built homes newly opened during 1960
was for the first time greater than the number of converted premises opened
as old people's homes. At that time, a third of all residents in local
authority, voluntary and private old people's homes were still accommodated
in former public assistance institutions. Local authorities operated
1343 homes at the end of 1960, 51% of which had fewer than 35 places, and
a further 38% had between 35 and 70 places.

Building design up until this time had only been oriented by the
rather informal advocations of Ministry reports and circulars and it was
not until the release of Local Authority Building Note No. 2 in 1962 that
these recommendations came to be regarded as Ministerial directives.[10] The
Building Note dealt specifically with accommodation for the elderly and the
collective experiences of local authorities over the previous 14 years.
Clear, detailed specifications ranging over the design and layout of
individual rooms to the pattern of grouped units with communal facilities
were given, and were completed by the jointly-issued Ministry of Health and
Local Government Design Bulletin No. 1 of the same year. The latter was
concerned with the micro-features of design, paying particular attention
to the difficulties experienced by the elderly in daily living. For
the first time, the human aspect of design for the elderly had been
included; later circulars and notes on grouped flatlets for the elderly
and accommodation for the disabled followed this precedent.

In 1969, both Design Bulletin No. 1 and Building Note No. 2 were
reissued with metric measurements, implying that the recommendations laid
out there were still current at that time. The Building Note was
eventually superseded in 1973 by Local Authority Building Note No. 2

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[10] There had been no long run planning of buildings before then for a
number of reasons, principal among them being the desire to promote local
autonomy and the uncertainties as to how the newly established geriatric
services would effect the need for welfare services. See also Kemp
(1973), Thomas et al (1979).

(Revised Edition) (DHSS, 1973), which represents the state of play at
the present time. The Revised Note reiterated the desirability of
medium sized homes of between 30 and 50 places, a size which was expected
to strike the balance between economic and other values. Integration
within the community was essential in order both to foster the continued
well-being of residents and to allow the use of the home's skilled labour
resources and capital facilities to supply day care and meal services to
non-residents. The style of home should be "domestic as befits its function",
and ramps, hand rails and corridor seats should be liberally provided.
In contrast to the original, 1962 Note, it was recommended that single
bedrooms should be provided in all cases, although some double bedrooms
may be needed if married couples are to be admitted to the home. Minimum
resident-to-facility ratios were laid down, the resident-bath ratio
remaining at the 1962 recommendation of 15:1 and the resident-WC ratio
being lowered to 4:1. Improvements in engineering services, kitchen layout
and equipment, and staff accommodation were also emphasised. In general,
the revised Building Note allowed greater flexibility, attempted to
reflect the changing philosophy of care for the elderly, and generally
raised the standards for residential accommodation to a level comparable
with private residences. Between the publication dates of these two
Building Notes, the number of local authority old people's homes rose
from 1482 to 2472, and the proportion of homes with 70 or more beds fell
from 10.7% to 4.7%. The percentage of local authority residents accommodated
in former public assistance institutions fell from 47% (Cmnd 1973,
paragraph 72) to under 15% (DHSS, 1975, p.5). A total of 140 former
institutions were still in use in 1970. Over the same period, the number
of registered voluntary and private homes increased by a third to 2925 with
a slightly greater increase in the number of residents. The latest figures
(for 31st March, 1978) indicate that there are 5739 old people's homes,
45.8% of which are owned by local authorities (with 84.9% of residents),
19% owned by voluntary organisations (with 13.6% of residents), and the
remainder by private organisations and individuals.

Today, of course, many old people's homes remain empty as local
authorities and other organisations cannot afford to run them. Indeed,
the revenue consequences of capital expenditure have now caused widespread
concern and have contributed to the shortages of accommodation already
caused by capital cutbacks.

4.3.2   Indicators of Home Design   The first British study of residential home design, and one of the first to appear in the international literature, was conducted by Townsend (1962) who examined eleven dimensions of the physical environment selected to represent those that significantly influenced life in the home and those that had been stressed in successive Ministerial guidelines.   Townsend found considerable variation in home design, with most homes falling a long way short of Ministerial guidelines. Whilst his recommendations regarding the role of residential care in the system of services for the elderly were not taken up, Townsend's approach to the assessment of physical structure proved influential amongst academics and administrators alike.   Most subsequent surveys have adopted some or all of his design indicators (Williams, 1967; Harris, 1968; Sumner & Smith, 1969; Carstairs & Morrison, 1971; DHSS, 1975; Scottish Education Department, 1978).   In this section, I shall discuss residential home design under fifteen heads, corresponding to those features of design and structure which have been the subject of attention in the above-mentioned studies, in some of the American literature, and in government recommendations of the last thirty years.

(a)   Ownership and original function.   The conventional breakdowns of ownership and original function in the British context distinguish local authority, voluntary and private homes, on the one hand, and purpose built, converted private dwellings, former Public Assistance Institutions and the remainder, on the other.   Although the available evidence is scant, it is well known that there are marked differences in staffing, in caring practices, and in many aspects of design attributable to differences in ownership and original function (see the Appendix to this chapter). Voluntary homes are more likely to be old and converted (Age Concern & NCCOP, 1976, p.22; see also DHSS, 1975), and converted premises are generally held to be much less desirable as old people's homes than the purpose-built homes, particularly for the more infirm residents (DHSS, 1975; DHSS, 1976a, p.17; Parker, 1965, p.109; Townsend, 1962; Appendix to this chapter).   Beglin (1965, p.200) even argued that many of the converted homes were less satisfactory than the public assistance institutions they replaced.   Certainly "converted country houses can be positively intimidating in their grandeur, and have the added disadvantage of being a long way from familiar surroundings, and an expensive bus ride away from relatives.   In such cases it is almost impossible for residents to

participate in any social life outside the home except by means of outings organised <u>en masse</u>" (Shenfield, 1957, p.161). I have already charted some of the more important post-war developments in home design and investment in section 4.3.1; further details of the differences between homes of different ownership and of different original function are described by Townsend (1962) for the late 1950s and by Carstairs & Morrison (1971) and DHSS (1975) for 1970. Research in the USA has examined the relationship between ownership and quality of care. The evidence is ambiguous. Anderson et al (1969) found that non-profit (nursing) homes provided slightly better care than 'for profit' homes. Original function and quality of care were also correlated. Beattie & Bullock (1964) discovered that social milieu and attitudes of staff were more supportive in non-profit homes. On the other hand, Levey et al (1973) found no relationship between quality of care and ownership.[11]

(b) Size of home and living unit. Probably the most frequently cited aspect of home design is home size or scale, and our review of general policy developments above revealed a number of pronouncements and recommendations on 'optimal' home size during the post-war period. At the time of the National Assistance Act, the best homes were the small homes run by voluntary organisations, and the new public homes were modelled along the same lines, although there was really a conspicuous absence of factual evidence regarding the relationship between scale and either quality of care or quality of life. The Committee chaired by Rowntree (1947) agreed "with the opinion, which is coming to be held by an ever-growing number of persons who have studied the subject, that all normal old people who are no longer able to live an independent life should be accommodated in small homes rather than in large institutions".[12] The Committee also felt that the advantages of small scale (in terms of domesticity, intimacy and 'homeliness') outweighed the disadvantages (in terms of higher average costs). This tension between cost and quality of care has been reiterated time and again and provides a very clear example of the underlying

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[11] Note that the American building boom of the 1960s seemed to go on, at least in many areas, right up to 1975, so that research based on data of the early 1960s (such as that conducted by Anderson et al and Beattie & Bullock) would certainly be out of date by the late 1970s.

[12] The Committee recognised the (economic) difficulties of accommodating all elderly persons in small homes in the immediate future and thus felt that some "medium size" institutions of up to 200 residents would be acceptable (Rowntree, 1947, p.76).

tension throughout the period, and throughout the welfare services, between
the so-called organisational and humanitarian perspectives on care.

Government thinking on the 'optimal' or desired size of home has swung
from Bevan's vision of 25 to 30 place homes in 1948, up to a size of
60 places in 1954 (Circular 3/55) and back to an intermediate scale of
30-50 residents in 1962 (Ministry of Health, 1962), a size reiterated in
the revised Building Note of 1973. The criteria used to reach such
specifications are not altogether clear, but it seems that administrators
were anxious to strike a balance between the lower unit costs of the larger
homes and the more domestic atmosphere of the smaller buildings. Assumptions
about scale economies for larger homes will be seen to have been proved
largely correct in terms of both construction and operating costs
(chapter 7 below). However, official concern[13] about domesticity has
been based on a relatively naive model of residential care, for architects
and others have long emphasised that it is not home size but living unit
size that is important (Goldsmith, 1971; Thomas et al, 1979). Lipman &
Slater (1977 a) recommended that if the 'optimum' size of 25 places was
exceeded, the number of residents in a home should be limited to approximately
forty who are accommodated in 'family groups' of some eight individuals.
The DHSS commissioned a study of the "group unit design" in April 1975
and a report was published in the summer of 1979 (Thomas, Gough & Spencely,
1979; and see DHSS Circular LASSL (79) 10). The report concluded that

> "While the group unit design does make possible flexible care
> for groups of people with different needs, the design implications
> of the principle have not yet been fully explored ... and the
> range in the total spectrum of care which the group unit home
> can appropriately encompass remains an open question"(Thomas et
> al, 1979, paragraph 2.2).

Home or living unit size has been examined in relation to factors
at various points along the causal chain of the production of welfare.
Larger homes tended to be rather more "institutional" at the time of the
1970 Census (see Knapp, 1977a, and the appendix to this chapter), but
made staffing easier (DHSS, 1976a, p.13). Moving one link along the causal

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[13] And see NOPWC (1966, paragraph 47), Paige & Jones (1966, p.33), Parker
(1965, p.111), Williams (1967, chapter 1).

chain we find a large body of (contradictory) evidence regarding the
relationship between home size, and quality of care. Empirical associations
have been found to be positive (Anderson et al, 1969; Beattie & Bullock,
1964), to be negative (Linn, 1974; Townsend, 1962) and to be non-existent
(Gottesman, 1972; Levey et al, 1973). Quality of care is a concept of
limited value. It is thus interesting to observe a steadily growing body
of evidence to suggest that home size is related to social milieu. Curry &
Ratliff (1973) argued that as the size of home is increased, the number
of staff increase proportionately less, so that more formal caring
procedures would be adopted, thereby increasing resident isolation and
dissatisfaction. The Census report also felt that the positive association
between home size and dependency, independent of resident age, may
reflect the enforced dependency of residents in larger homes (DHSS, 1975,
p.28). Kasarda (1974) described how the internal order of an organisation
would be shaped to a considerable degree by its size. Increasing size
in residential care may necessitate an increasing commitment of resources
to clerical, administrative and other impersonal activities, so adversely
affecting the morale and general well-being of residents (Kart & Manard,
1976; Paige & Jones, 1966, p.33; Huws Jones, 1966).

Further along the production of welfare process, Greenwald & Linn
(1971) found that activity and communication between residents declined
as homes got larger; and Lawton et al (1975), in a study of 154 Federal
housing projects for the elderly in the USA, established a similar
negative association between community size and friendship scores, housing
satisfaction, and activity participation. Curry & Ratliff (1973) attempted
to explain such findings in terms of self-selection biases, arguing that
residents of larger homes had significantly more relatives outside the
home, and more contact with them, than did residents of smaller homes;
and therefore experienced greater isolation within the home. The argument
is ingenious and plausible, but has little validity in the British context,
where residents rarely face a choice of homes. Resident psychological
well-being is probably only influenced indirectly by home or dwelling
unit size, so that the empirical associations reported in the literature
are really only convenient summary indications of a more complex process
involving specialisation, staff morale, and other factors discussed in
relation to the "quality" of the input of care staff. The ambiguity of

the results lends support to this interpretation (Lawton, Brody & Turner-Massey, 1978; Lawton, Nahemow & Teaff, 1975; Schooler, 1970). So also do investigations for other types of institutions. The importance of social and physical "niches" in the home to the well-being of residents is a much more interesting question. For instance, the whole of a resident's life can be illuminated by a genuine friendship with another resident or a warm relationship with one or two staff members.

The available evidence on home size indicates that homes have steadily been getting smaller over the post-war period. The first national collection of data in 1959 indicates that local authority homes had an average of 48.3 residents, whilst the average number of places in registered voluntary and private homes was 19, with voluntary homes housing an average of 29.9 residents in 1960, and private homes an average of 9.2 residents. Today the average number of residents is approximately 41 in local authority homes, 25 in voluntary homes, and 13 in private homes.

(c) General home design. Under this heading are grouped features of design which have generally not been singled out for special consideration in the succession of Building and Design Notes since 1948. Nevertheless the social and psychological ramifications of alternative designs can be far from inconsiderable, as has long been recognised by architects, planners and administrators.

Both Barrett (1976) and Hitch & Simpson (1972) emphasise the importance of forging a domestic, "private home-like", atmosphere in the home, particularly by careful planning and design. The latter authors in fact found that a domestic atmosphere resulted in significantly more desirable behaviour among residents than did non-domestic, institutional environments, and Barrett uses domesticity as the key to the derivation of his seventeen design indicators. In this physical design context, domesticity can possibly be best fostered by grouping resident rooms into a number of self-contained units within the home. Lipman & Slater (1977) strongly oppose centralised accommodation, which subjects residents to staff surveillance and attention, which may encourage depersonalising and dehumanising caring procedures (queueing for meals, block treatment at various activities, large and impersonal dining and sitting rooms), and which generally emphasises the institutional nature of care. The key to

the proposals of Lipman and Slater is their assumption that an objective
of residential care should be the promotion of resident independence. Thus,
residents should be able to experience "complete activity cycles" in
all aspects of daily living - not only the consumption of meals, but
also its purchase, preparation, and clearing away. Whilst not all
residents would be capable of performing all these tasks, it is important
to reduce dependence amongst those that can, and decentralised accommodation
would appear to be one way of achieving this. Many other design ramif-
ications follow from this dependence/independence stance - for example,
bed-sitting rooms should be large enough and sufficiently well appointed
as to enable residents to engage in the day-to-day activities customarily
pursued outside the home.

One aspect of general home design sometimes mentioned concerns the
entrance/exit points for the home, whose number and location will partly
influence the extent of resident interaction with the community. Entrances
should be sited close to bus stops (or vice versa) and, if entrances
are to be spacious and fitted with seats for residents, should afford a
good view of nearby activity areas (particularly, pedestrian traffic
routes). In the design of the main entrance, Lawton (1970, 1975a) has
stressed the need for security, for shelter from the elements, for community
identity (the home should have its road number clearly marked), and for a
noninstitutionalised appearance.

(d) Internal scale. The internal scale or size of the home is
closely allied to the external scale and to the scale of bedrooms, sitting
and dining rooms, and corridors, but at least a few authors have chosen to
consider it separately. Lawton (1970) describes how self-maintenance
skills can be reinforced if toilets, bathrooms, and dining facilities
are situated close to popular sitting areas (and see DHSS, 1979, paragraph
1.9; Townsend, 1962, p.113). Age Concern & NCCOP (1976, p.22) were
critical of voluntary homes in this respect. Barrett (1976) takes this
one step further, explicating spatial proximity by measuring the distance
between the pairs of rooms. Spatial proximity of residents and resident
rooms has been found to be an important determinant of social interaction
and peer friendship formation (Rosow, 1967; Lawton & Simon, 1968; Lawton,
1970; McClannahan, 1973). Generally, proximity facilitates friendship
formation, although there is contrary evidence to suggest that restricted

spatial range may foster conflict, whilst distance may foster interaction
(Jones, 1975), implying the need for both closeness and distance for
the maintenance of normal friendships.

(e) Corridors. The dimensionality and prosthetic attachments of
corridors may well be important in the determination of the character and
quality of life of the residents of old people's homes. Surprisingly,
there are few studies of this facet of design. Osmond (1966) found that
long corridors tended to cause anxiety among patients in hospitals. In
designing specifically for the elderly, Barrett (1976) and Lawton (1975a)
had this and related findings in mind when drawing up their recommendations.
Barrett emphasised the length-width ratio, defining a corridor as "domestic"
if this ratio was between 4:1 and 2:1. A ratio of less than 2:1 was
defined as a circulation space and not a corridor; a ratio of greater than
4:1 was "institutional" in character (cf. Townsend, 1962, p.113; Ministry
of Health, 1962, p.1). Corridor height tends not to show much variation
in newer homes. Alcoves and windows "break up" corridors and were thus
notionally assumed to terminate a corridor; fire doors closed only at
night did not. Ministerial and Departmental guidelines and recommendations
for design have focused additionally on the need to provide handrails,
ramps and seats along the corridors of homes for the physically frail and
the elderly (cf. DHSS, 1979, paragraph 1.2; Ministry of Health, 1962, p.3).
Such "physical prostheses", which will also include fire doors that can
be opened by even the most frail, and floor covering which does not
hinder the less confident (such as non-slip mats and floors that are not
highly polished), will encourage resident mobility and independence and
will generally improve the quality of institutional life.

(f) Bedrooms. Some of the earlier gerontological literature took the
number of nursing home patients or residents per room as either an
indicator or an important determinant of the quality of care (e.g.
Anderson et al, 1969). Rather more interesting conclusions emerge from
studies more firmly based in the environmental psychology tradition.
Ittleston, Proshanksy & Rivlin (1970), for example, conducted a very
detailed study of the relationship between bedroom size and social interaction
on a psychiatric ward. The number of residents using their rooms at
any one time increased more or less proportionately to the number assigned
to each room, but the range of resident activities showed marked differences.

In the larger rooms there was a predominance of isolated passive activity, whereas residents in smaller rooms favoured social activity involving their room-mates. These researchers thus concluded that there was a functional equivalent of privacy which does not require physical separation, whereby large, multiple-occupancy rooms provoke patient withdrawal. In the context of care of the elderly, researchers have had mixed success in establishing an association between bedroom occupancy and social interaction. Bader & Lawton (1969) with a very small sample found no change in interactions following a change from 4-person to single rooms, whilst with the slightly larger sample studied by Lawton, Liebowitz & Charon (1970) a similar change from 4-person to single rooms effected an increased range of movement and a decreased amount of staff-patient interaction.

Resident preferences are certainly in favour of single rooms. However, as with any of the inputs entering the welfare production process, we cannot discuss influences and variations in isolation. Staff practices and attitudes and the day-to-day rules of the home, can neutralise many of the welfare-enhancing qualities of single bedrooms. Single bedrooms are critical for a resident's identity, but cannot ensure privacy if doors must be left open or unlocked, or if staff enter unannounced without respect for the resident's only place of "personal territory". The interdependence of home inputs is further emphasised by our findings of significant associations between bedroom size and staffing levels (see chapter 9).

Single bedrooms for residents (or separate rooms for married couples) were recommended by the Rowntree Committee (1947, p.58) and the Ministry of Health (see Circulars 49/47 and 87/48). However, the former institutions nearly all had large dormitory accommodation which was rarely converted (or convertible) into single bedrooms without considerable expense, and the former private residences converted into homes were also so designed as to make single bedrooms very rare indeed. It was thus not until purpose-built homes were brought into use that single bedrooms became a reality for more than a handful of residents in each home. Circular 3/55 changed tack, suggesting that sixty per cent of residents should be accommodated in 4-to 6-Person bedrooms, and a further twenty per cent in double rooms. Opinion changed again in 1957 and single and double bedrooms were back in favour (Cmnd 1418, p.112), and encouraged again in the Building Notes of 1962 and 1973. Nevertheless, a number of voluntary

homes still had unsuitable dormitory accommodation in 1973 (see Younghusband, 1978, vol.1, p.197) and many voluntary organisations defended it, "sometimes apparently because they think there is no way to convert it to single rooms, but sometimes because they have not conceived of anything else for their residents" (NCCOP, 1974, p.23).

(g) Sitting rooms and sitting spaces. There is and always has been considerable variation in sitting room size,[13] and thus the social and psychological correlates of scale and design are of particular policy interest and importance. Despite this potential importance there have been few studies of these relationships. Most of these few have been conducted by Alan Lipman.

Lipman's earlier work was very much concerned with the "micro-features" of sitting room layout and particularly the association between seating arrangements and proximity and friendship formation (Lipman, 1967, 1968). He found that sustained verbal interaction established friendships, and that this was severely limited by regular occupancy of the same seats by residents and by fixed furniture arrangements. Staff usually directed new residents to chairs in order to form dyads or triads which they perceived to be compatible, and residents would then habitually occupy them and cause considerable disturbances should "their" chair be occupied. Social exchanges, and especially those with affective content, were limited to these small groups of elderly people.

In later work, Lipman & Slater (1975) defined a friendly sitting space as one with a high proportion of supportive/acceptive interactions and drew up recommendations for such a space in practice. However, no consistent relationship was found between most of a set of design variables - lounge size, whether the lounge was open-plan, the aspect from the lounge windows, the lounge's position in the home or in relation to staff activity areas - and the level and proportion of supportive/ acceptive interactions between residents in sitting spaces. They thus concluded that "the nature of the interactions between residents is more clearly a function of the nature of the interaction between staff and

[13] In 1970, 3 local authority homes and 33 voluntary homes reported no sitting room. Also see the Appendix to this chapter.

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residents than it is a function of specifically isolated design features of the home" (ibid., p.23). Nevertheless, in a later discussion of their findings, Lipman & Slater (1977a) considered it both worthwhile and appropriate to score individual seat positions and sitting spaces by reference to the number of adjacent chairs, the view of the TV and of activities inside and outside the home, the level (ground floor or otherwise), and the size of the sitting space. Employing these scores in their study of eight homes they noticed that the "best" seats were occupied by a higher-than-expected proportion of confused residents.

The trends are thus fairly clear in the literature and are mirrored in Ministerial directives - sitting rooms should be small and dispersed, should allow small groups of residents to get together if and when desired, but should be flexibly arranged to increase the range of interactions (cf. Rowntree, 1947, p.59). One further consideration regards the tidying of dayrooms. Both residents and social work staff would prefer that dayrooms not be tidied each and every day (Neill, McGuiness & Warburton, 1976).

(h) Dining rooms. As with lounges and sitting spaces, architectural research emphasised the desirability of small and dispersed dining rooms. In contrast to lounges and sitting spaces, however, dining rooms appear to be getting larger. One of the less attractive features of many home environments is the block treatment of residents, and nowhere is this more obvious in the modern home than in the dining room. Queueing, the lack of choice on the menu, and the fixed number of residents per table are all aspects of this enforced uniformity. Instead it is felt that the large formal dining room should be abandoned and replaced by a number of small and dispersed dining areas, decentralised so as to minimise staff-resident interaction and increase resident initiative and independence (Lipman & Slater, 1977). Meals should be prepared close to each dining area to further foster independence and reduce block treatment, and also to avoid the practical but not insignificant problem of food getting cold as it is transported from a central kitchen, as was the case in one home appraised by Goldsmith (1971).

(i) Bathrooms and toilets. The revised edition of Local Authority Building Note No. 2 issued in 1973 laid down minimum resident-to-facility

ratios of 15:1 for bathrooms and 4:1 for WCs. Resident-facility ratios
have been laid down in most design recommendations and are clearly important
in as much as "readily available" amenities facilitate resident self-reliance
(Huws Jones, 1966; Lipman & Slater, 1977). However, the location
(dispersion) and design of these facilities is perhaps equally if not
more important in determining the institutional environment and fostering
resident competence. Resident dependence will be reduced if basins and
WCs can be located in or near each bedroom, and preferably if provided
individually (Goldsmith, 1971). Barrett (1976) sees this as a key
determinant of domesticity in the old people's home.

(j) Activity amenities. One of the reasons why local authority
architects have preferred to provide a large single dining room in their
newer purpose-built homes instead of a series of small dispersed rooms
has been to simultaneously provide a large activity room where concerts,
parties and bingo sessions may be held. This may be a high price to pay
for such functions, which are commonly infrequent and poorly attended
(McClannahan, 1973; and see chapter 5 below). Goldsmith (1971) argues
that a large entertainments room should be provided in addition to a
number of small dining spaces, but that there should also be available
smaller rooms for individual or small group activities. Only sixty per
cent of purpose-built homes have a room or rooms available for residents
to interview or receive their visitors in private. Frequently residents
are forced to receive daytime visitors in the entrance lobby or the
television room.

Provision of space for resident activities is only a start, however,
for spatial arrangements, staff intrusions, staff and resident apathy,
and resident choice will all determine the extent to which the space is
used. Residents should be allowed to choose when to watch television,
and when to change channels, and not have activity and dayrooms tidied
daily by domestic staff. Therapy programmes, wherever possible, should
not be externally initiated, as this too can produce dependence among
passive residents and resentment among the more active. One of the most
detailed studies of activity participation and resident interaction in
nursing and residential homes was carried out by McClannahan (1973). She
found that the mere provision of activity rooms and amenities was not
sufficient to produce anything above the minimum amounts of participation,

and residents needed to be encouraged with the help of various prompts
(a public address system, posters and an amplified announcement at lunch).
Failure to prompt meant that only half as many residents attended the
activities.

(k) General resources. Under this rather vague heading we include
such diverse resources as minibuses, kitchenettes, sunshades and libraries.
Although some earlier American research suggests only a modest relationship
between such resources and the quality of care (Kosberg, 1973; Linn, 1974),
residential staff and administrators have nevertheless stressed the need
for certain items to enhance quality of life (Townsend, 1962, pp.71, 115,
117; Ministry of Health, 1962; DHSS, 1973; Lawton, 1975; Neill et al,
1976).

(1) Staff accommodation. I am not concerned here with the need for
staff to have somewhere to escape for a short break from the emotional
demands of caring. Case study literature suggests that this is of great
importance for monitoring staff morale. In the context of the welfare
production process it is the location of staff accommodation relative to
that of residents and relative to major internal "traffic" routes that
is of interest, rather than the extent and quality of staff accommodation
per se. The latter will undoubtedly influence staff morale, recruitment
and turnover, but this is not considered until chapter 10.

There are opposing viewpoints as to whether the matron, supervisory,
and care staff should have accommodation within the home. The constant
presence of at least some members of staff will reduce the likelihood of
serious fires, and will provide a source of on-call night staff. However,
resident staff will find it extremely difficult to separate their
professional and private lives, may become unnaturally insulated from
the norms of community life, and may reinforce the Victorian image of
the matron or warden as an inescapable authoritarian figure amongst
residents. These thoughts are possibly in the minds of administrators
in those local authorities (such as Kent) that are currently trying to
persuade resident staff to seek accommodation outside the home, purportedly
to increase occupancy levels at a time of service contraction or standstill.

(m) Micro design. Practically every sociological treatise (e.g.

Townsend, 1962, pp.67, 70, 117; Rowntree, 1947, pp.146-7), architectural appraisal (e.g., Thomas, Gough & Spencely, 1979, pp 50-51) and Ministerial Design Note (Ministry of Health, 1962, pp.1-4; DHSS, 1973, paragraph 4) has touched upon one aspect or another of "micro-design". Detailed description and layout of resident bedrooms, of corridor design, and of bathrooms, comments on floor coverings, the height of baths and basins, the position of light switches, the importance of slowly closing lift doors, the danger of raised thresholds on doors are just some of the micro design recommendations put forward. Accounts of some aspects of micro design are given in Lawton (1975a, pp.213-217), Davies & Knapp (1981, chapter 4, section 2(m)), and DHSS (1979, chapter 7).

(n) Condition of the home. As was made clear by Townsend (1962), some homes may be well-appointed with resources and amenities, and be well-designed inside and out, but the influences of these will be negated by a poor state of repair of the home and its grounds. Schooler (1970) found that a condition-of-home factor was related to resident morale in his study of American housing for the elderly. However, if we take the domesticity criterion stressed by Barrett, we must be careful not to make the home too aseptic or hotel-like, for such environments are neither domestic nor in many regards in the least bit similar to those which residents have left.

(o) Siting of the home. The need to site homes 'centrally' needs little emphasis: residents have much greater incentive to go out and become involved in community activities, members of the local community are more likely to come to the home for activities and day care, residents have much more to watch from the home and, if the residents can be accommodated close to their former homes, there is a greater chance of "life continuity" (Boucher, 1954; Townsend, 1962, p.222 & 240; Ministry of Health, 1962; Ruck, 1963; Parker, 1965; Williams, 1967, p.45; Davies, 1968, p.65; Harris, 1968, p.45; Sumner & Smith, 1969, pp.285-291; Kemp, 1973; DHSS, 1975, p.5; PSSC, 1975, p.25; DHSS, 1976a, p.17; DHSS, 1979, p.1). Schooler's (1970) study confirms the importance of these factors. Residents in housing projects located close to facilities (barber, bank, stores, public transport), friends and relatives scored higher on morale scales than residents of poorly located projects.

4.3.3   Summary Indicators of Capital   As well as these individual
indicators of home design there have been attempts to measure capital per
se.   In fact, two quite distinct "traditions" appear to converge in
this regard.   Firstly, we can distinguish the vast majority of conventional
economic production studies which have adopted a single capital index
for use in the complex manipulations of their modelling exercises of
production processes.   Secondly, we have a group of planners and
architects (and a few students of housing policy) who have exercised
considerable ingenuity in deriving unidimensional housing or residence
indicators.   In both 'traditions' the emphasis has been on unidimensionality,
although for quite different reasons.   Economists have been constrained
by severe data limitations and to some extent blinkered by a need to
quote capital-labour ratios and marginal productivity values.   Housing
quality indicators, on the other hand, have usually been constructed to
allow the mapping of housing condition differences between and within
areas, and occasionally to help explain variations in house prices or
housing demand and supply (Duncan, 1971; Wilkinson, 1973).

In the present context, summary measures of the residential home
capital input would be both difficult to obtain and wasteful of valuable
policy-related information.   Relatively few attempts have been made to
obtain summary measures of residential home capital or design and those
that have been made have not always been terribly successful.   A fourfold
classification of homes using information collected in the 1970 Residential
Census but applying standards laid down in the revised Building Note
of 1973 was made by the statistics division of the DHSS,   Unfortunately,
it turned out that all 3365 homes within the Census fell into just two
categories, being either "inadequate" or "seriously inadequate".   This
cannot, however, be taken as an indication of the stringency of the
categorisation criteria, nor of the 1973 Building Note standards (which,
of course, were not in force at the time of the Census of 1970), nor of
the nationwide unsatisfactoriness of residential accommodation, for in
the absence of both output indicators and unambiguous evidence relating
aspects of design to these outputs, it is impossible to pass 'final judgement'
on these standards.   Using the same data collection, I attempted to arrive
at an empirically determined set of summary measures using factor analytic
and principal component techniques.   The analysis failed to produce a

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dimensionality with a plausible theoretical interpretation, thus confirming
the difficulties of a similar set of analyses conducted by DHSS themselves.
Schooler (1970) had more success with an American study of this kind.

As well as these various theoretically and emirically-based summary
indicators of home capital, or at least home design, there is the conventional
cost-based indicator familiar to economists. The diversity of the capital
equipment employed in those production processes more conventionally studied
by economists and, of course, the very nature of economic science itself
have been responsible for this concentration on the cost of capital.
As our discussion in this subsection makes very plain, residential home
capital inputs are no less diverse - and probably more so - than the capital
inputs of, say, a manufacturing industry. However, the reluctance of
economists - with precious few exceptions - to concern themselves with
the problems and policies of the personal social services has left us
with very little knowledge of the capital costs of social care. Only
Wager (1972) and Thomas et al (1979) have studied the construction costs
of old people's homes in Britain, whilst on the other side of the Atlantic
(where the private sector is rather more important in the provision of
care services than in Britain) the research of McCaffree et al (1975) and
McCaffree (1977) should be mentioned.

4.4 Conclusion

There is a third set of resource inputs into the welfare production
process which we should distinguish. These inputs differ from the manpower
and capital inputs in that they are not directly supplied by home staff,
they are very much less durable, and they are generally rather more
"individualised". Some of these resources are clearly "consumables"
(to use the economic jargon) - medications, surgical appliances, disposable
items of linen or clothing, diet and various other minor items. There
would appear to have been very little research on these consumable
items, with the notable exception of the dietary intake of elderly persons.
There is a strong tradition of "nutrition research" among British
geriatricians and gerontologists, exemplified by the numerous studies
conducted by researchers at University College (London) Hospital (Exton-
Smith, 1968, 1970; Stanton, 1971) and Queen Elizabeth College (Davies,
Hastrop & Bender, 1975). Studies of malnutrition and of diets in general,

like studies of hypothermia, are fairly numerous in the British literature, and in both cases we face the problem of deciding where they fit into the production of welfare process. Our arguments of chapter 3 indicate that there are elements of nurture and nutrition which may legitimately be included in a listing of the outputs of residential homes, whilst others should be retained as inputs. Also in this third set of resource inputs are the numerous and various personal possessions of the elderly residents, loss of which can dramatically alter the course of the individual's life within the home. These are discussed again in the next chapter.

Appendix to Chapter 4   Variations in Home Design, 1970

Central government policy regarding the size and design of residential homes for the elderly has changed direction a number of times in the post-war period, as described in chapter 4. Employing data collected in the 1970 Census of Residential Accommodation the effectiveness of these policy changes is examined. The Census is described in more detail in DHSS (1975).

The data set assimilated from the Census, taken on 30th March 1970, contained information on 3365 homes for the elderly and younger physically handicapped. These homes were categorised by function (elderly, elderly mentally infirm, younger physically handicapped, or mixed), by type of authority (County Borough, London Borough, County Council), and by owner-ship (local authority or voluntary association). From the set of County Borough homes for the elderly or elderly mentally infirm owned by the local authority itself, a random sample of 200 homes was taken; this represented an approximately one-in-four sample.[1] For each home there were 44 indicators of design or physical structure; these covered size, siting, period of completion, original function, numbers of buildings and floors, availability of certain facilities (bathroom, W.C., urinal, sluice and lift service) on each floor, sufficiency of dining and sitting room space, distribution of beds between rooms, accommodation for the officer-in-charge, his or her deputy, and other staff, and the provision or otherwise of rooms for office work, resident private use, laundry, visitors, and day care. It was felt to be impracticable and unnecessary to consider each and every design indicator in this thesis and so a number of criteria were invoked to reduce the set to manageable proportions. Firstly, only characteristics of design reflecting care of residents were included, thus removing eighteen indicators of staff accommodation. Secondly, variables which were almost double counts of others were discarded; for example, the total number of upper floors without a life service was dropped in favour of its counterpart which measured the actual number of beds so affected. Thirdly, certain indicators were compounded together to give measures with greater theoretical and intuitive meaning; for

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[1] The data supplied to the author by the DHSS were not in machine-readable form. The sample size was restricted to 200 because of the costs of coding and punching.

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example, from five indicators of the distribution of beds between rooms
two new indicators were constructed - one measuring the proportion of
beds in single rooms and the other the number of beds per room. Similarly
certain other pieces of "raw" information such as the number of baths or
the number of W.C.'s were weighted to give the more relevant resident-
facility ratios. Fourthly, information regarding the provision of sluices
and of urinals was discarded as the incidence of these facilities has
never been a policy matter, but merely reflects the individual tastes of
particular local authorities and architects. Finally, the coded variables
representing period of completion, original function, and siting of
the home were discarded as indicators of design per se, although they will
be used in the examination of variations in design.[2]

The remaining variables, of which there were seventeen, are listed
below together with abbreviations for future use:

SIZE   =   Number of resident places normally in use.

NSC   =   Number of buildings which are not self-contained.

UFB   =   Proportion of beds on upper floors.

NOLIFT =   Proportion of beds on upper floors without life service.

NOBATH =   Proportion of beds on floors without bathroom.

NOWC   =   Proportion of beds on floors without W.C.

WC   =   Number of residents per W.C.

BATH   =   Number of residents per bathroom.

SINGLE =   Proportion of beds in single rooms.

BED   =   Average number of beds per bedroom.

DINE   =   Number of residents per dining room.

SUDINE =   Sufficient dining space for all residents at one time (1 = yes,
                                                                                            0 = no).

SIT   =   Number of residents per sitting room.

SUSIT =   Sufficient sitting space for all residents at one time (1 = yes,
                                                                                            0 = no).

RPU   =   Room for residents' private use (1 = yes, 0 = no).

DAYC   =   Extra sitting and dining room space for day care (1 = yes, 0 = no).

LAUN   =   Room set aside and equipped as a laundry (1 = yes, 0 = no).

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[2] I return to examine some of these excluded design variables, together with
many of the included ones, in later chapters of this thesis.

To reduce this set still further without discarding any variables requires the construction of one or more indices of physical structure. These could be used in the investigation of staff levels, vacancies, and turnover, for example,[3] and would be of interest in their own right in an examination of area differences in the nature of residential care. In fact, a single, four-valued, Fabric Index has been constructed from this very data by the DHSS. Each home was put into one of four categories by comparing various characteristics of the home with the standards laid down in Building Note No. 2 (DHSS, 1973). The categories were:

(a) Home comes up to Building Note Standard (BNS);

(b) Home is adequate, possessing all of fourteen listed characteristics, but fails to come up to BNS;

(c) Home is inadequate, not being in categories (a), (b) or (d);

(d) Home is seriously inadequate, having one or more of nine listed characteristics.

Regrettably, every one of the 3,365 homes within the Census was, on these criteria, either inadequate or seriously inadequate. Because the DHSS Fabric Index was thus only dichotomous and of course unidimensional, it was not considered sufficiently sensitive as a measure of internal physical structure.

The constructed indices should ideally reflect the intrinsic multi-dimensionality of the physical structure of a home (thus ruling out such unidimensional techniques as Guttman scaling as used in a similar context by Hartman, 1974) and be sensitive indicators of variation in structure. Because most of the variables are continuous measures of structure, an indexing procedure which ordered homes on a discrete scale would clearly waste information. These considerations, coupled with the almost total lack of an _a priori_ theoretical dimensionality, suggested an empirical multivariate technique such as factor or principal component analysis. Factor analysis has been previously used by both Kain & Quigley (1970) and Wilkinson (1973) in their respective examinations of the dimensions of structure and environment for ordinary dwellings. Whilst this analytic technique has the advantage, _vis-à-vis_ principal component analysis, that the constructed factors often have a practical interpretation, it has been

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[3] See chapters 9 and 10 below.

criticised by statisticians on the grounds that its solution is indeterminate since the choice of rotation is essentially arbitary. The controversy here, however, is purely academic for both techniques were used and neither produced a dimensionality with any plausible theoretical inter- pretation. This general uninterpretability of the extracted factors and components outweighs the reasonably good 'fits' obtained and thus casts doubt upon the usefulness of an empirically derived dimensionality.[4]

This lack of dimensionality, both theoretically predictable and empirically interpretable, indicates that it would be unwise to attempt to construct 'hold-all' indices of design. In the rest of this study, therefore, the seventeen design variables will be treated separately. I now consider variations in these design characteristics with original function and period of completion of the home, firstly in tabular form and later using multiple regression analysis.

Variations in design with original function and period of completion

Questions 2.4 and 2.5 of the Census form asked the matron to indicate the period during which the greater part of the building was completed and the original function of the home. The distribution of homes between twelve cross-tabulated categories is shown in table 1. Four original functions of home are distinguished: purpose-built, private residence, Public Assistance Institution, and other, the last designation including former hospitals, schools, children's homes, nursing homes and alms houses. Three completion periods were distinguished here: up to 1951, between 1951 and 1960, and after 1960, although a slightly more detailed age of building indicator was available. The distribution in table 1 is pretty much as

Table 1: Distribution of sample by original function and period of completion

	Purpose Built	Private Dwelling	Former PAI	Other	Total
Pre-1951	2	96	8	11	117
1951-1960	19	2	0	1	22
Post-1960	61	0	0	0	61
Total	82	98	8	12	200

[4] The correlation matrix for the 17 design variables is given on p. 208 of Knapp (1977a).

expected - most of the buildings completed prior to 1951 were either private dwellings, PAI's or others, whilst all of the homes completed in the 1950s were purpose built. Notice that the dating refers not to the period when the building was brought into use as a residential home, but the period during which its construction was completed.

Each of the seventeen design characteristics was then broken down by period of completion and original function in the same way. The mean values of each variable within each of the eight cells with observations, across cells for each period and original function, and for the sample as a whole are presented in table 2. A series of multiple regression equations are fitted below to investigate the significance of between-cell

Table 2: Mean values of design indicators by original function and period of completion of home

		Purpose Built	Private Dwelling	Former PAI	Other	Sub-total
SIZE	A	57.00	29.86	136.00	72.64	41.60
	B	46.00	25.00	-	30.00	34.27
	C	45.83	-	-	-	45.83
	D	46.15	29.77	136.00	69.08	43.09
NSC	A	0	0.167	0.375	0.273	0.188
	B	0.053	0.500	-	0	0.091
	C	0.131	-	-	-	0.131
	D	0.110	0.174	0.375	0.250	0.160
UFB	A	0.565	0.769	0.515	0.630	0.735
	B	0.575	0.908	-	1.000	0.625
	C	0.524	-	-	-	0.524
	D	0.537	0.772	0.515	0.661	0.659
NOLIFT	A	0	0.493	0.198	0.361	0.452
	B	0.127	0.500	-	0.167	0.163
	C	0.015	-	-	-	0.015
	D	0.041	0.493	0.198	0.344	0.287
NOBATH	A	0	0.073	0.084	0.094	0.074
	B	0	0	-	0	0
	C	0.002	-	-	-	0.002
	D	0.001	0.071	0.084	0.086	0.044
NOWC	A	0	0.035	0	0	0.029
	B	0	0	-	0	0
	C	0	-	-	-	0
	D	0	0.034	0	0	0.017
WC	A	4.80	4.75	6.74	5.48	4.96
	B	4.76	7.90	-	7.50	5.17
	C	4.81	-	-	-	4.81
	D	4.80	4.82	6.74	5.64	4.94
BATH	A	14.3	10.6	28.2	13.4	13.9
	B	11.6	10.8	-	10.0	11.5
	C	12.8	-	-	-	12.8
	D	12.6	10.6	28.2	13.1	12.3
SINGLE	A	0.237	0.110	0.014	0.086	0.103
	B	0.426	0.014	-	0.533	0.393
	C	0.558	-	-	-	0.558
	D	0.520	0.108	0.014	0.123	0.274
BED	A	1.85	2.77	6.12	3.46	3.05
	B	1.55	2.61	-	1.30	1.64
	C	1.35	-	-	-	1.35
	D	1.41	2.77	6.12	3.28	2.38

		Purpose Built	Private Dwelling	Former PAI	Other	Sub-total
DINE	A	57.0	27.6	41.0	35.3	29.7
	B	43.5	25.0	-	30.0	41.2
	C	45.8	-	-	-	45.8
	D	45.6	27.5	41.0	34.9	35.9
SUDINE	A	1.00	0.97	1.00	1.00	0.975
	B	1.00	1.00	-	1.00	1.00
	C	1.00	-	-	-	1.00
	D	1.00	0.97	1.00	1.00	0.98
SIT	A	15.4	14.5	18.3	18.3	15.1
	B	13.6	25.0	-	15.0	14.7
	C	12.4	-	-	-	12.4
	D	12.8	14.7	18.3	18.0	14.3
SUSIT	A	1.00	0.96	1.00	0.82	0.95
	B	1.00	1.00	-	1.00	1.00
	C	0.97	-	-	-	0.97
	D	0.98	0.97	1.00	0.83	0.96
RPC	A	1.00	0.10	0.63	0.27	0.168
	B	0.47	0	-	0	0.41
	C	0.61	-	-	-	0.61
	D	0.59	0.10	0.63	0.25	0.33
DAYC	A	0	0.063	0	0.182	0.069
	B	0.105	0	-	0	0.091
	C	0.164	-	-	-	0.164
	D	0.146	0.061	0	0.167	0.100
LAUN	A	0.500	0.365	0.375	0.636	0.393
	B	0.474	0	-	0	0.409
	C	0.771	-	-	-	0.771
	D	0.695	0.357	0.375	0.583	0.510

A = Pre-1951

B = 1951-1960

C = Post-1960

D = Sub-total

variations. The tables, however, are useful in that they provide a quick and clear picture of the differences in design between the various types of home. The first sub-table, for SIZE, is a good example revealing

that former PAI's have an average 136 residents as compared with the average of 25 for former private dwellings completed in the 1950s and the average of just under 46 for the most recent purpose built homes. In contrast, the sub-table for NOWC (the proportion of beds on floors without a W.C. on the same floor) indicates very little variation between and within cells. Most of the differences in table 2 are in the expected direction, and those that are not (such as for NOBATH) are relatively small.

Multiple regression analysis

The variations in design with original function and period of completion can be more meaningfully modelled by making explicit use of the causal priority between the variables. For example, the size of the home is, in part at least, determined by the function for which it was originally intended and the period during which the greater part of it was completed. In addition it may also have been influenced by its siting, homes situated some distance from general amenities possibly being more remote and having more room for building - although the association is probably weak. Similarly, the internal design characteristics such as the proportion of single bedrooms or the proportion of upper floor beds without lift services will have been determined by original function and age. In addition the size of the home itself may influence the internal design, independent of these exogenous influences.

To capture these causal relationships a multiple regression equation was fitted for each design characteristic, with the independent or explanatory variables being original function, period of completion, size of home, and possibly siting. Most of these were measured using a set of dichotomous 'dummy' variables:

AGE   =   Age of the home in ten year units;

PURP   =   Original function dummy: purpose built = 1, otherwise = 0;

PRIV   =   : private residence = 1, otherwise = 0;

PAI   =   : public assistance institution = 1, otherwise = 0;

UPTO   =   Period of completion of home dummy: pre-1951 = 1, otherwise = 0;

FIFT   =   : 1951 to 1960 = 1, otherwise = 0;

WEL   =   Siting of home in relation to amenities for residents (shops, church, public transport) dummy: "well sited" = 1, otherwise = 0; and

MOD   =   : "moderately sited"= 1, otherwise = 0.

The dummies WEL and MOD represent the matron's subjective assessment of the siting of the home in relation to amenities for residents. The variable AGE is continuous so that dummies would normally be unnecessary. However, in the estimated regressions AGE will represent the general changes in design over the last 150 years whilst UPTO and FIFT will capture the essentially non-linear influences imparted by policy changes in recent years.

A further complication of the simple linear regression equation is the introduction of interactive dummies, obtained by multiplying together some of the single dummies listed above. Without interaction effects, the causal influence of any pair of values of dummy variables would simply be the sum of the two separate influences; more complex and hopefully more realistic influences can be obtained by adding their product as a further (dummy) regressor. Thus the variable (PURP)(UPTO) refers to homes purpose built prior to 1951 and (PURP)(FIFT) to homes purpose built during the fifties. This leaves the single PURP variable representing purpose built homes completed between 1960 and Census day.

The regression equation in full, employing the notation given above for the dummies and interaction effects and allowing Y to represent each design characteristic in turn, is thus

$$Y = a + b.PURP + c.PRIV + d.PAI + e.UPTO + f.FIFT + g.(PURP)(UPTO) +$$
$$h.(PURP)(FIFT) + i.(PRIV)(FIFT) + j.WEL + k.MOD + m.AGE + n.SIZE$$

Because of the way the dummy and interaction effects were defined, not all of these variables and coefficients will appear for any one home within the sample. Rather, considerable simplification will follow from the mutual exclusivity of the cells given in table 1. Table 3, which has identical cells to table 1, gives the form of the regression equation for each type of home. These regression equations were estimated using a stepwise ordinary least squares procedure,[5] entering regressors singly in the order suggested by their partial correlation coefficients and excluding

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[5] Ordinary least squares is appropriate despite the apparent simultaneity of of the system of equations because the system is recursive. The SIZE regressor, whilst endogenous, is not correlated with the residual term and hence will not induce simultaneity bias into the coefficient estimates.

variables whose contribution to the explanatory power of the equation was non-significant.

The estimated equations are given in Table 4 where each pair of rows represents a separate equation. The dependent variable is on the extreme left hand side and the goodness of fit as measured by the multiple correlation coefficient R^2 on the right. If R^2 exceeds 0.139 then, from the standard theory of statistical influence, the possibility that the fitted relationship is purely attributable to chance factors is less than one in a hundred. Equations for which R^2 fell short of this critical value are not reported; these were for design characteristics NSC(R^2 = 0.099), NOBATH (0.073), NOWC (0.065), WC (0.041), BATH (0.076) and DINE (0.107).[6]

Table 3: Predicted values of design variables for the various original function-period of completion cells

	Purpose Built	Private Dwelling	Former PAI	Other
Pre-1951	a + b + e + g + Q	a + c + e + Q	a + d + e + Q	a + e + Q
1951-1960	a + b + f + h + Q	a + c + f + i + Q	-	a + f + Q
Post-1960	a + b + Q	-	-	-

Note: Coefficients a, b, ..., i are as in text; and
$Q \equiv j.WEL + k.MOD + m.PER + n.SIZE$

Table 4: Regression equations for design variables

Regressor Coefficient	PURP a	PRIV b	PAI c	UPTO d	FIFT e	PURP UPTO f	PURP FIFT g	PRIV FIFT h	WEL i	MOD j	AGE k	SIZE m	n	R^2
Dependent Variable														
SIZE	17.0 (25.5)	25.2 (25.0)	-46.0* (7.89)	57.4* (11.7)	34.9 (25.7)		-24.8 (31.0)	-2.3 (6.5)	48.0 (31.0)	4.0 (6.5)	3.1 (6.5)	2.5* (1.1)	(Dep. Var.)	0.475
UPB	0.592* (0.103)	0.020 (0.101)	0.073 (0.077)	-0.490* (0.112)		0.372 (0.233)	0.037 (0.158)	-0.337 (0.241)	-0.096 (0.282)	-0.037 (0.034)		0.019* (0.010)	-0.001 (0.001)	0.263
NOLIFT	0.577* (0.235)	-0.473* (0.231)			0.033 (0.210)	-0.298 (0.365)		0.414 (0.372)	0.271 (0.360)	0.057 (0.044)		-0.007 (0.013)	-0.003* (0.001)	0.393
SINGLE	0.505* (0.206)	0.039 (0.201)	0.028 (0.068)	-0.057 (0.094)	-0.426* (0.207)		0.099 (0.250)	-0.128* (0.052)	-0.538* (0.250)	0.006 (0.052)	0.036 (0.052)	-0.002 (0.008)		0.557
BED	0.858* (0.959)	0.414 (0.930)	-0.493 (0.323)	2.26 (0.466)	1.66 (0.968)		-1.31 (1.17)	0.121 (0.243)	2.15* (1.07)	-0.212 (0.244)	-0.042 (0.243)	0.082* (0.040)	0.005* (0.002)	0.594
SIT	9.70* (1.38)		0.143 (1.36)	-3.87 (2.21)		1.52 (4.58)	1.58 (3.23)	-0.769 (4.68)	11.72* (5.78)	-0.786 (1.19)	0.296 (1.20)	0.318* (0.150)	0.073* (0.013)	0.275

Note: Asterisked (*) coefficients are significantly different from zero at the level $\alpha = 0.05$.

In other words, none of these design characteristics varied significantly

6 The other design variables (SUDINE, SUSIT, RPU, DAYC and LAUN) are all dichotomous variables for which multiple regression analysis is inappropriate (see chapter 10). Logit analysis revealed poor "fit" for each of these variables.

with original function, period of completion, siting or size of home for the sample of buildings in use as residential homes in 1970.

For each of the eight significant regressions, the first row in table 4 gives the estimated coefficients and the second row the corresponding standard errors or deviations (in parentheses). Where there is no coefficient or standard error in a column, this indicates that inclusion of the variable would have had a negligible effect upon the goodness-of-fit (R^2) and was thus not entered by the stepwise routine.

The first equation predicts the size of a residential home, as measured by the number of places normally in use so that the regressor on the extreme right hand side of table 4 does not appear. The fit is as good as one might expect, with approximately 48% of the variation in SIZE being explained by the included regressors. From the estimates one can compute the cell values as indicated in table 3 to examine how SIZE varies with original function and period of completion. As one might expect the picture that emerges is similar to that in table 2 with considerable between-cell variation. The siting of the home has very little bearing on the size.

The second equation in the table reports the regression for the proportion of beds on upper floors (UFB) and exhibits possibly less variation with original function and age than one might have imagined. The eight former public assistance insitutions in the sample and the purpose built homes completed since 1960 have the greatest proportion of beds on the ground floor, whilst converted private dwellings have only 23% of beds so situated. In conjunction with the next equation, which predicts the proportion of upper floor beds without a life service to their respective floors (NOLIFT), former private dwellings are far and away the worst 'offenders' and these factors may account for the increasing reluctance of the authorities to convert such buildings into residential homes.

The equations for the two 'bed-variables', SINGLE and BED, which both have high R^2 values are interesting in the historical context. The overall trend in Ministry policy over the past thirty years has been toward fewer multiple bedrooms, and if the evidence from these equations is generalisable, then it appears that the recommendations have been taken

up. Whilst only 1.4% of residents in the former public assistance
institutions have their own bedrooms, this figure is, on average, 55.8%
for residents in the newest purpose built homes. Similarly there were
over six residents per room in the former PAI's, but an average of only
1.35 for the most recent purpose built homes. Once again, converted
private dwellings come out of the analysis badly with only about one
resident in ten having a single bedroom and with the average number of beds
per room (2.77) being twice that for purpose built homes. The SIZE and
AGE regressors were of no importance in determining the proportion of
single bedrooms, but were both significant in influencing the average
number of beds per room, with the older and larger homes having higher
averages.

Conclusion

This examination of a small, but nonetheless representative, sample
of residential homes for the elderly clearly indicates that there were
still, a decade and a half after Peter Townsend's (1962) critical survey,
alarmingly wide variations in physical design. Some aspects of design,
for example the resident-bath and resident-W.C. ratios, show little
variance across the sample, and this can be taken as evidence of the
success of Central and Local Authority efforts to close homes which fail
to meet certain minimum standards of design. Other aspects of physical
structure, particularly the number of residents to a bedroom and the number
of upper floor beds not served by a lift, leave much to be desired in
a large number of homes. Whilst the most recent, purpose-built, old
people's homes may well be models of design, there are still too many
buildings currently in service which are seriously substandard by a number
of criteria. What is particularly disturbing is that the converted former
private dwellings, despite their homeliness and intimacy, impose unnecessary
difficulties upon residents and staff alike through the poor 'siting' of
bedrooms, the lack of privacy, and the non-availability of certain basic
facilities. The increasing infirmity of the population of elderly people
within residential homes and the current standstill, not only in capital
expenditure, but also in the opening of newly constructed homes, implies that
these design inadequacies will be with us for some time to come.

Chapter 5   NON-RESOURCE OR QUASI-INPUTS

5.1   Introduction

Non-resource inputs, sometimes called quasi-inputs, are those deter-
minants of final and intermediate output which are not physical or
tangible. These inputs are discussed here under two heads: social
environment and resident characteristics and experiences. Non-resource
inputs are distinguished from the (physical) resource inputs, which were
discussed in the previous chapter, mainly for reasons of convenience. This
convenience stems from a number of sources. Most previous writing on
residential care of the elderly, and on all human services, has tended
to separate resource from non-resource inputs, although only rarely
using exactly the terminology adopted here. Sometimes this separation
has been accomplished only by omission: social work and much social
policy literature has often omitted all reference to resource inputs,
whilst central and local government documents and the (relatively rare)
writings of social economists often give the impression that resources
alone constitute the inputs into residential care. Resource inputs, in
contrast to non-resource inputs, have a readily measurable cost attached to
them and thus appear in the accounts of local and central authorities.
This separation of the two principal types of input is nevertheless
dangerous, for the inputs are inherently substitutable and to discuss one
without reference to the others can suggest a grossly over-simplified
production of welfare process.[1] In this as in the previous chapter,
therefore, I shall attempt to "cross-reference" other inputs as and when
appropriate. Clearly, however, the comprehensive "cross-referencing"
that is really required must follow a comprehensive empirical examination
of the production of welfare in old people's homes. Whilst such an
empirical examination was beyond the scope of the research reported here,
the discussion in this thesis might hopefully provide the reasonably
sound basis needed for such an examination.

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[1] It is also an over-simplification to separate the resident from his or
her environment. It is the interaction of resident and environment
that determines psychological well-being. It has also been suggested
that residents and environments "transact" in such a way as to make
separation impossible (Ittleston, 1976; see also Lawton, 1979).

In the next section I discuss social environment, starting with a brief description of some of the principal theories of social environment (subsection 5.2.1), moving on to some general comments on social environment and its place in understanding residential care policy (5.2.2), and ending with a more detailed discussion of some important dimensions of social environment (5.2.3). These are: (a) regime, social control and independence, (b) motor control, (c) privacy, (d) stimulus and participation, (e) communication and interaction, (f) homogeneity and (g) continuity. Section 5.3 is concerned with resident characteristics and experiences. Four quasi-inputs are distinguished under this heading: resident personality (5.3.1), experiences prior to admission (5.3.2), characteristics at the point of entry (5.3.3), and the stages of admission, adjustment and institutionalisation (5.3.4). As with the previous chapter, discussions of post-war changes and trends in non-resource or quasi-inputs are not distinguished from discussions of principal features and definitions.

5.2   Social Environment

My discussion here is predominantly sociological rather than psychological although both disciplines will be seen to be present. The starting point is a theory of differences in environments and their social consequences, rather than a theory of individual personality and its implications for what types of environment are anabolic and stimulate psychological well-being. It is not my intention to review the theoretical accounts of social environment that have been expounded, but it is necessary to describe them briefly in order to place squarely in context my subsequent discussion of some of the more important dimensions of social environment.

5.2.1   Theories of Social Environment [2]   The starting point for many of the recent attempts to conceptualise and model the impact of residential environments is recognition of, and occasional borrowing from, the seminal contributions of Goffman (1961) and Kleemeier (1961). Goffman's essays on "the social situation of mental patients and other inmates" introduced the concept of the total institution, and subsequent conceptualisations of environments have often focused on criteria of totality laid out by him.

[2] These theoretical accounts of social environment are more thoroughly discussed in chapter 5 of Davies & Knapp (1981).

Probably most forms of institution have at one time or another been the subject of investigations of such an orientation. Kleemeier, in contrast, was specifically interested in environments of the elderly and distinguished congregate, segregate, and institutional control dimensions. This dimensionality has been adopted and adapted in a number of gerontological studies, with the contributions of Pincus (1968) and Kahana (1974) being perhaps the best known.

A number of other gerontological studies have built, respectively, on the contributions of Goffman and Kleemeier. Principal among the former is Ruth Bennett's ten item scale of totality (Bennett, 1963; Bennett & Nahemow, 1965 & 1972), but there are also very many other studies which have, explicitly or implicitly, examined elements of totality and their relationship to aspects of well-being among the elderly (Coe, 1965; Kahana & Coe, 1969; Townsend & Kimbell, 1975). Kleemeier's "Congregate-Segregate-Institutional" dimensionality has most notably begotten Pincus' "Homes for the Aged Description Questionnaire", which in turn partly inspired Kahana's congruence model of residential care (Pincus, 1968; Pincus & Wood, 1970; Mangum, 1971; Kahana, 1974). The fact that Kahana focuses directly upon the degree of congruence between the elderly person's needs and the properties of his environment (see below), and that she extensively references Barker's (1968) study of behaviour settings, illustrates the interrelatedness of approaches to measurement of the environment and, to a limited degree, the artificiality of the distinction adopted here.

Other investigators have preferred to go back further for their theoretical bases, and particularly to the works of Lewin (1935) and Murray (1938). Lewin asserted that behaviour was a function of the relationship between a person and his environment, and in subsequent studies concentrated on such climatic features as leadership, atmosphere, social norms and opportunities for new role acquisitions (Lewin, 1946, 1952). Murray also wrote of the relationships between person and environment, but emphasised the importance of an optimal balance between personal needs (whose strength characterises "personality") and environmental press. Expansion of this "need-press" model by Stern, Stein and Bloom (1956) and Pace & Stern (1958) was later followed by the empirical applications of Moos, Lawton and others. A recent and good example of such empirical research

is the study of Nehrke et al (1979).

The social ecology model of Lawton and his associates is based on Murray's need-press theory, emphasising the relationship between the elderly individual's level of competence ("a diverse collection of abilities residing within the individual") and the environmental press (e.g. Lawton & Simon, 1968; Lawton & Nahemow, 1973; Lawton, Patnaik & Kleban, 1976). Lawton (1979) has recently re-emphasised the usefulness of this model in his discussion of environmental change. Moos similarly postulates a need-press model and has developed a series of "environment-measurement" instruments for virtually every kind of institutional setting. His earlier work made extensive use of his COPES instrument (Moos, 1974; and see O'Donnell, Collins & Schuler, 1978) and more recently he has developed a Sheltered Care Environment Scale to evaluate settings for the elderly (Moos et al, 1979; Moos & Lemke, 1980; Lemke & Moos, 1980). This approach can be viewed as a special case of DeLong's (1974) theory of Coding Behaviour and is consistent with a large body of sociological research collectively known as Exchange Theory.

5.2.2   Social Environment in Context   On many previous occasions in this thesis I have discussed the concept of social environment, its determination by staff and capital resources (chapter 4) and its general development over the last thirty or so years (chapter 2). Of particular relevance is the gradual move from undifferentiated to differentiated individual needs of residents and thus the gradual recognition (or rather the belated acceptance) of a congruence model of residential care (see section 2.2.5). It will be most useful to discuss social environmental characteristics of homes by examining a number of the more important dimensions, and this is done below, but there are a number of general comments which are of relevance at this stage. What is particularly noticeable from a reading of the British policy and academic literatures is the almost total absence of any discussion of social environments which is well-grounded (or even badly-grounded!) in any of the theoretical perspectives distinguished above. Bevan's arguments in 1948 stressed privacy, autonomy and independence but failed to mention stimulation and thus failed to recognise the resource implications of creating a stimulating environment for residents. Rowntree (1947) had earlier commented on the impossibility of creating 'good' environments in the ex-PAIs in use at

that time (see also Townsend, 1962, chapter 4), but on the whole discussions of social environments in the early post-war years were rare indeed.

The importance of social environment in residential care in general came to be recognised during the 1960s and gradually research developed in this area, although little of it addressed the problems of caring for the elderly (Younghusband, 1978, vol.1, p.27). Townsend's study, of course, provided more information on residential homes for the elderly than had ever before been available. He concluded that post-war changes represented "an uncertain compromise between two conflicting ideologies, one perpetuating institutional practices carried on for generations and the other introducing new principles of individuality, freedom, self-determination, the right to occupation and the opportunity to form new social relationships, as well as preserve old one" (Townsend, 1962, p.419). Townsend's survey revealed a great deal of variation between homes in the "quality of care", but there was rather less variation in social factors than in resource factors (Davies, 1968, p.137; Parker, 1965). The most recently conducted survey of old people's homes would appear to indicate no great reduction in the extent of variation in the last twenty years; indeed, a disturbing number of homes (15%) were described by Social Work Service Officers as institutional, with "rigid", "unrelaxed", or "tense" regimes (DHSS, 1979, paragraph 7.27). The need to assess social as well as physical environments was thus only realised gradually, and has culminated today in calls for the assessment of the social environments of voluntary and private homes prior to registration, rather than just their physical standards (Davies & Knapp, 1981, chapter 7; PSSC, 1977, paragraphs 2.36-2.55; PSSC, 1978, p.23).

I now turn to a discussion of some of the principal dimensions of social environment distinguished in the theoretical literature on ameliorative and supportive environments for vulnerable people and/or discussed in the policy literature on care of the elderly. It is important to emphasise once again that it is only convenience which leads me to separate my discussion of social environments from that of, say, staff and capital resources. These various inputs are all closely related, both causally and contemporaneously, and an empirical study would need to examine a whole host of plausible hypotheses. The impact of resource inputs on social environment has been stressed on numerous occasions above,

and it should also be noticed that social environment and resident characteristics (either as quasi-inputs or intermediate outputs) are also closely related. Does social environment determine resident dependency, or vice versa, or are they independent factors? The need-press models of, inter alia, Lewin, Murray and Lawton stress the interaction of resident characteristics (or "competence") and environmental characteristics (or "press"), and occasionally the policy literature in Britain has examined the relationships between environment and resident. These interrelationships are not discussed separately here, although they do arise in a number of places in the discussion of the production of welfare approach.

5.2.3   Some Important Dimensions of Social Environment   Most of the dimensions discussed below are well integrated into the scales and assessment instruments that have been developed out of the theoretical perspectives mentioned above. All have been discussed in the policy literature and in descriptive studies of old people's homes.[3] Seven dimensions are distinguished which do not necessarily span the whole universe of social environment in residential settings for the elderly but which have attracted most attention from gerontologists.

(a) Regime, social control and independence.[4] A dimension of environment which has attracted much attention in gerontological studies is regime or social control. It is rare to find a survey of the elderly, and of their position in society, that does not examine their real and perceived independence. Certainly regime plays an important role in the theories of Goffman, Kleemeier and Murray, and virtually all the scales and instruments based on their models include regime or social control items- for example, the scheduling of activities and sanction system of

[3] Often these characteristics are discussed as residents' "rights". The PSSC, for example, set out the rights of residents as: leading a satisfactory life; dignity, privacy and humanity; full participation as desired; decision-making; risk-taking and responsibility; opportunities for interaction and so on (PSSC, 1977, paragraph 2.7).

[4] Some discussion of institutional environments maintains a distinction between regime and social control, on the one hand, and individuality, independence, and resident rights on the other. I discuss them together here as they are very closely related but I do maintain the distinction between social and motor control. One of the most recent and interesting reviews of the "relocation" literature regards the concept of control as the key element in understanding the diverse findings on the influence of relocation on the well-being of the aged (Schulz & Brenner, 1977).

Bennett (1963), the rules, regulations and programme of Pincus (1968),
Kahana's (1974) institutional control items, and the organisation subscale
of Moos et al (1979).

The Social Work Service of the DHSS, looking at a sample of old people's
homes, distinguished four kinds of social control (Utting, 1977, p.17):
(i) control "derived from the perceived responsibilities of communal
living, including the responsibility to protect residents" (including
restrictions on smoking habits and drug administration); (ii) control
"apparently required for efficient management in the light of staffing
levels and qualifications" (routinising the day to fit into the staff
rota); (iii) control required to protect staff "in view of their assumed
accountability for things that might go wrong" (avoiding risks); and
(iv) control apparently "without a rational purpose in the operational
context" (lack of consultation over menus, enforced dependence). As
Utting remarks, there may be some purpose to the first three, but the
fourth is without justification. Using an alternative classification of
controls - into behavioural, cognitive, and decisional - Averill (1973) has
also demonstrated how social controls can be both purposeful or purposeless.
(One could, equivalently, talk of controls as contributing to economy
and/or effectiveness, or not so contributing.) A PSSC Working Party
Report provided a succinct statement of the organisational meaning and
"justification" of routine: "Is the timing of the day's routine and
hours of going to bed based on what staff consider appropriate for residents,
what residents desire, what a small number of residents want, what is
necessary in order to fit a certain number of activities into the day,
what is administratively convenient, or the hours when staff are available?"
(PSSC, 1977, p.52).

Closely related to the concept of regime is the extent to which the
environment allows residents to retain their independence and individuality,
and to exercise their rights. Independence is a state of self-reliance,
whether economic, physical, mental or social, and is associated with at
least one of three behavioural states - autonomy, environmental mastery
or internal control (Atchley, 1977, chapter 11; Golant & McCaslin, 1977).
Economic independence is generally denied the resident of the old people's
home, whilst physical independence depends crucially on the individual's
mobility and the physical prostheses provided by the home. Mental

independence requires "an alert mind that can exercise knowledge.
experience, and skills to solve problems posed by the social and physical
environment" (Atchley, 1977, p.197), and social independence means having
the power to demand one's rights.

Rowntree (1947, chapter 4) described a typical daily routine in
Public Assistance Institutions at the end of the war, describing the rules
as harsh and unnecessarily inflexible and the discipline as unduly rigid.
The National Assistance Act partly responded to Rowntree's findings,
as noted on many occasions above, and during the House of Commons debate
Bevan emphasised the need for old people to be independent and subject
to a minimum number of regulations. The famous "hotel model" of residential
care was thus outlined but was to become an elusive (and unsuitable)
objective in subsequent years. Nevertheless, residents in the post-1948
homes were allowed much greater individuality than had previously been
the case (Younghusband, 1959, paragraph 442) and the general atmosphere
was generally more informal (Boucher, 1957, p.39). Townsend tested these
impressions more rigorously, using an 8-item Freedom in Daily Life scale
which covered rather more than just regime, social control and independence.
He found that voluntary and private homes both offered more freedom to
residents than did local authority homes, the differences being significant
at the 0.01 level (Townsend, 1962, pp.212-5, 451). No other major British
study has examined regime in such a rigorous manner (although American
research has developed considerably in this regard), but most subsequent
studies have described or commented upon regime as an important aspect
of residential care. Policy documents on care and design have encouraged
independence, but only noticeably in the last ten years. For example,
the first issue of Building Note 2 (Ministry of Health, 1962) confined
itself to home design, whereas its revised version stressed resident
individuality, independence and personal dignity (DHSS, 1973, paragraph
2.1). The most recent comments on design similarly comment on the need to
foster independence (Thomas et al, 1979, paragraphs 6.3, 6.4), and today
independence and choice are explicit policy objectives of central and local
authorities (see, for example, DHSS, 1977a, paragraph 5; DHSS, 1978,
paragraph 5.12; DHSS, 1979, chapter 7).

It is difficult to trace any clear developmental trends in home regime
over the post-war period, other than the increasing frequency of statements

about regime in policy writing and the increasing desire to encourage
resident independence. Without strictly comparable research techniques
it would be dangerous indeed to make comparisons between studies, and no
attempt is made here. A few impressions may be gleaned from research
reports, however. For example, Townsend (1962, p.137) complained that
few residents in the new post-war local authority homes were allowed to
keep their own pension books, and yet the Social Work Service Report
published in 1979 found fewer residents with this degree of independence
(DHSS, 1979, chapter 5).[5] In both years, voluntary and private homes
allowed more residents to hold their own pension books. The corollary of
withholding pension books is the payment of "pocket money" which can be
"undignified and likely to take away the self-respect of the individual"
(ibid, p.68). Similarly, although the evidence is at best partial and at
worst only anecdotal, it is difficult to discern any real improvement in
certain other aspects of home regime in the last thirty years or so. Home
routine is still too rigid (compare Rowntree, 1947, p.59; Townsend, 1962,
p.98; DHSS, 1976c, p.10; DHSS, 1979, chapter 7); staff are still held to
be in a position of authority and too many heads of homes are still
called "matron" (Townsend, 1962, p.86; NCCOP & Age Concern, 1977, paragraph
13; Davis, 1979; DHSS, 1979, paragraph 7.25); residents are still rarely
allowed to make their own tea or coffee unattended and unsupervised
(Townsend, 1962, p.221; DHSS, 1979, paragraph 7.17; Thomas et al, 1979,
paragraph 7.14); and generally residents are still not allowed to take
risks[6] (Rowntree, 1947, p.147; Townsend, 1962, p.134; PSSC, 1977, paragraph
2.7; Brearley, 1979). Of course, there are some difficulties of inter-
pretation here. For example, a greater amount of risk-taking might well
have been allowed in recent years had residents not been increasingly

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[5] Strictly, the proportion of homes in 1979 which allowed a majority of
their residents (or a relative or friend) to hold their own pension books
was smaller than the proportion of residents in 1959 allowed to do so.

[6] One frequently discussed aspect of risk concerns fire precautions. See
Morris (1977), NCCOP (1976), Orriss (1977) and PSSC (1977, pp.45-46).
The DHSS enquiry into the fire at Fairfield in 1972 recorded 12 deaths for
those aged 65 or more from fire and flames in "residential institutions",
and 372 "in the community". Given the numbers of people in these two
locations (see section 3.6.1 above), the fire risk was much greater in
homes than elsewhere.

dependent. The DHSS (1976c) survey found that the presence of some very dependent residents in a home meant that <u>all</u> residents were treated as if they were very dependent. Similarly, greater independence may have been afforded residents had there not been acute staff shortages in some homes in recent years, coupled with the introduction of a shorter working week and working day.

There have been some improvements in regime, however, although again the evidence is far from conclusive. Residents are now more free to leave the home unattended (compare Younghusband, 1959, paragraph 442; DHSS, 1979, paragraph 7.22); residents have greater freedom to retain their own GP when entering a home, or choosing a new GP when they wish (Townsend, 1962, pp.82, 221; DHSS, 1979, paragraph 8.4), although some GPs are unwilling to keep old people on their lists after admission; residents have a much wider choice when it comes to clothing, furnishing and diet (Rowntree, 1947, p.146; Townsend, 1962, pp.88-89, 97, 208; DHSS, 1979, paragraph 7.14); and staff are generally much less likely to adopt authoritarian attitudes reminiscent of the worst aspects of the "medical model" (Townsend, 1962, pp.88, 130; DHSS, 1979, paragraph 7.10; and see section 2.2.7 above). Other aspects of regime which have been examined, but for which there is insufficient evidence to allow any inter-temporal comparisons, include the control of medications, the control of the TV, the restrictions on visitors and on smoking, and the wearing of uniforms by staff.

The weight of empirical evidence would suggest that self-determination and personal control is necessary for, or at least strongly associated with, general well-being and survival among the elderly. Removal or loss of personal control is associated with depression, physical decline, a false sense of helplessness, early death (Gresham, 1976; Schulz, 1976; Seligman, 1975; Streib, 1971; Thomas et al, 1979), lower morale and life satisfaction, and poorer adjustment (Chang, 1977; Fawcett et al, 1976; Felton & Kahana, 1974; Nehrke et al, 1979; Wolk & Telleen, 1976). Regime and social control often take the form of "infantilisation" of residents through enforced dependency and patronising statements, thus initiating or contributing towards negative self-attitudes among residents (see, for example, DHSS, 1979, paragraph 7.10). Incongruity between expectations about residential regime and the realities of life in the home will be confusing as well as debilitating (Chang, 1977). Expectations of a routinised

environment can be so strong as to induce residents to introduce elements
of regimentation even when the management deliberately tries to avoid it
(DHSS, 1979; Dorset County Council, 1977).

(b) Motor Control. Kahana's study of the impact of enviromental
characteristics and incongruities on the lives of 123 residents of three
American nursing homes found that motor control was one of five important
predictors of morale in two of the homes (Kahana,1974). Nehrke et al
(1979) developed and adapted Kahana's earlier research and found motor
control (as measured by Moos' scales for tolerance of restlessness and
physical barriers to mobility and interactions) to be a significant
determinant of morale, self-concept, mood, cooperation, communication
and social contact in their study of 165 residents in a single American
home. Motor control - covering the environmental tolerance of motor
expression, restlessness and wandering, and the residents corresponding
degree of "psychomotor inhibition" - is usually discussed and compared
with social and psycho-pharmacological control, and in many regards the
three are indistinguishable (Maxwell, Bader & Watson, 1972). Poor design
can substantially constrain the movements of physically frail residents.
Snyder et al (1978) tackle the motor control dimension from the perspective
of the resident, studying "wanderers" in an American nursing facility.
Wandering behaviour fell into three categories - searching behaviour,
often for something unattainable; industrious, seemingly inexhaustible
driving to remain busy; and aimless behaviour - and was found to have a
number of causes, most of them rooted in the wanderer's previous lifestyle.
This led Snyder and her associates to argue that "neither pharmacological
nor physical restraints are 'cures' for wandering. ... In any event physical
control and drugging should not be used as the first and only response
to wandering, since both approaches complicate and obscure the causes and
consequent approaches to wandering" (ibid, p.276). Wandering is certainly
a major problem in old people's homes in Britain (DHSS, 1979, paragraph
4.6) and a number of design recommendations to help contain the problem
have recently been assessed (Thomas et al, 1977).

(c) Privacy. What degree of privacy is afforded the individual resident
by the home? This question, in many guises, is common to most studies of
residential homes and attempts to tap a most important feature of the

caring and living milieu. Privacy takes a number of meanings in a number
of different settings, and Pastalan's (1968) four-fold classification has
done much to clarify them and to relate them to their respective
expected individual feelings. Firstly we have the conventional (lay)
definition of privacy as solitude - separation from the group. Solitude
is related to feelings of autonomy. Secondly one can distinguish privacy
as intimacy, where the individual is part of a small closely-knit group,
with concomitant feelings of emotional release. A third is freedom from
identification and surveillance in public places - anonymity - related to
self-evaluation, and a fourth is reserve, the erection of psychological
barriers against unwanted intrusion, related to feelings of limited and
protected communication.

Armed with this dimensionality it is possible to investigate the
factors affecting privacy. In the typical British old people's home,
sharing of bedrooms is not uncommon - at the time of the 1970 Census only
27 per cent of residents had single bedrooms. This can cause many problems
and give rise to unnecessary frictions. One resident, quoted in the
Personal Social Services Council report (1977) put it simply: "My opinion
is that single rooms should be available for each resident if that is what
they want. The choice of a single or shared room should be up to the
individual. Some people prefer privacy and some like company, but the
choice should be theirs" (ibid, p.53). With such enforced room-sharing,
the opportunities for solitude are considerably reduced. However, co-
operative staff behaviour and resident determination can together allow
the resident a certain amount of intimacy, freedom and reserve. Thus,
for example, staff can avoid entering a resident's room without knocking
and can ensure they seek permission before showing visitors around the
home; the warden or matron can allow residents to have locking cupboards;
the resident can be given privacy in the bath and toilet. In these
respects, residential care would appear to have improved since Townsend's
survey, as a comparison of his findings for local authority, private and
voluntary homes with the findings of two recent DHSS surveys suggests
(Townsend, 1962; DHSS, 1976c; DHSS, 1979). In Pastalan's terminology,
residents are now more likely to be free from surveillance and intervention,
although there is still room for improvement.[7]

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[7] "A great deal of lip-service is paid to the idea of privacy, but there is
alarming neglect of it. It is surprising how often staff will claim that
they always knock on residents' doors and yet immediately afterwards walk
into a room without knocking or with so perfunctory a knock as to be
meaningless. ... A private area to which he may withdraw, and a private
lockable place for his possessions are the basic right of every resident.
He may wish to share but he should do so by choice, not by necessity"
(PSSC, 1977, pp.53-54).

Given the design characteristics of homes it is still possible for residents to obtain a certain amount of "functional privacy". The studies of Ittleston et al (1970) and Weiss (1977) are informative in this regard. Ittleston emphasised the potential for functional privacy - a situation in which one has the widest range of personal choice - in rooms of different sizes on a psychiatric ward, and found that large, multiple-occupancy rooms provoke withdrawal: "there are functional equivalents to privacy which do not necessarily involve physical separation" (ibid, p.269). Townsend (1962, p.105) had observed exactly this kind of behaviour among residents of the ex-PAIs in his sample. Schwartz & Proppe (1969, 1970) likewise argue that where the environment does not provide opportunities for privacy, residents take it by not interacting with one another. The need for such "functional privacy" has probably declined over time with the increasing provision of single bedrooms, smaller dining and sitting rooms, group unit design homes and other aspects of micro-design (Cmnd 3703, paragraph 305; DHSS, 1976c; Plank, 1977, table 88; Thomas et al, 1979, paragraphs 7.4-7.8; Townsend, 1962, pp.137-9; and see section 4.3 above). The study by Weiss (1977) focused on intimacy rather than design, arguing that a minimum or threshold level of intimacy can act as a buffer to the stresses accompanying the ageing process. Evidence was found to support this argument.

A lack of privacy, in whatever sense, can have many and serious repercussions. Certainly, behaviour will often be forced towards a more primitive level of response - "constant physical proximity without relief leading to a search for social distance manifested in a refusal to talk or interact with near neighbours" (Schwartz, 1975). Privacy is frequently seen as an important intermediary between environmental press and individual competence, behaviour, and affect. For example, Aloia (1973) found privacy contributed directly to a sense of effectiveness, mastery, and hence self-regard, so that privacy functioned as a catalyst in the attainment of transactional competence. Kahana (1974) found privacy to be significantly predictive of resident well-being for "the erosion of their privacy probably stikes at the very roots of their identity, independence, and dignity" (Harris, 1977, p.13). Nehrke et al (1979), however, found that personal privacy and staff support for personal autonomy were not significant predictors of morale (as measured on the PGC scale) or life satisfaction (LSI-A), but did significantly influence

adjustment (as measured along mood, cooperation, communication and social contact dimensions) and self-concept. Privacy is a most important characteristic of home environment, for "access to privacy ... can be regarded as a buffer between the pressures met in everyday social inter-course and people's abilities to manage them" (Lipman & Slater, 1977, p.149).

(d) Stimulus and participation. Environmental stimulation is at the very core of the need-press models of Murray, Moos & Lawton. The individual resident's need for a degree of stimulation congruent with his level of competence is a common thread running through the various arguments of these theorists. Similarly, stimulation has been the principal focus of the various research studies of physical prostheses to foster engagement and well-being, and I have already discussed the relationship between activity and morale above (and see Fleming, 1976; Knapp, 1977; Nehrke et al, 1979).

Two characteristics should be distinguished here: stimulation and activities of residents on the one hand, and participation in the running of the home. Participation has been stressed at least since the time of Rowntree (1947, p.60) and has been an important component of policy in recent years (DHSS, 1973, paragraph 3.11; DHSS, 1977a, paragraph 5; PSSC, 1975, paragraph 74; PSSC, 1977, paragraph 2.7). Whilst the amount of participation changed dramatically after 1948, most commentaries on homes today lament the inadequate opportunities for residents to participate in decision-making or to carry out certain tasks and jobs (Rowntree, 1947, p.148; Younghusband, 1959, paragraph 492; Townsend, pp.218, 339; Haringey, 1978, p.17; DHSS, 1979, chapter 7). In the early post-1948 years the apparent justification for this lack of participation was the need to move away from the occasional exploitation of residents in the former workhouses as substitutes for staff; today the justification appears to be to avoid the risk of accident and injury.

"Stimulation" of residents, encouraging them to participate in activities and hobbies, was not mentioned as a policy objective when old people's homes were established in 1948. This omission of stimulation may simply have been an oversight, or it may have represented a tacit or implicit acceptance of the Disengagement Theory of ageing, or it may have reflected an underlying concern about the resource implications of

such an objective, or it may simply have reflected a desire to foster or
retain resident independence. Whatever the reason, subsequent policy
statements and research reports have taken a different viewpoint, stressing
the need for stimulation and for activity programmes for all those
residents who want it. Of course, some residents expect and even demand,
to do nothing (Harrington, 1975) but this should not be the sole basis
for care policy.[8] Research studies have identified and stressed a large
number of caring strategies and policies to stimulate resident activities
and interests, including design characteristics, such as windows with
interesting views and single bedrooms, more staff and more imaginative manage-
ment,[9] volunteers and other visitors to the home, caring routines which
actually allow for hobbies, continuity with activities pursued prior to
admission and resident-homogeneity. Most of these have already been
or will be discussed in this thesis, and see also Boucher (1957, p.39),
Davies (1968, p.71), DHSS (1979, chapter 4), Thomas et al (1979, pp.
32-37), Townsend (1962, pp.94, 101, 138).

It is difficult to find information on the actual participation
rates of resients in the various activities provided or encouraged by
homes, and impossible to find comparable information at two points in
time by which to gauge developments over time. Townsend (1962) tabulates
the percentages of newly admitted residents who felt they had enough
to keep themselves occupied in the home, and Plank (1977) presents responses
to similar questions for all residents some 14 years later. The comparability
of these two surveys has been noted before (see footnote 9, p.74) and the
results are summarised in table 5.1 and suggest an increase in the
proportion of residents with enough to do. Interestingly, 16% of those
residents in Plank's survey who felt they did not have enough to do did
not want anything else to do (table 86). Other research findings, such
as those presented by Rowntree (1947, pp.148-150) on the activities of

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[8] "Admission to an old people's home ... reduces the need to engage in
many practical activities of daily living; all too often it also fails
to provide the chance to engage in them at all, or in alternative
recreational activities. ... Low levels of observed activity may be as
much a function of very limited opportunities to engage in activities as
of the characteristics or disabilities of residents" (Jenkins et al, 1977,
p.429).

[9] One resident interviewed by a Social Work Service Officer said: "If
I have to go to the W-Safari Park once more I'll know all the bloody
monkeys by name" (DHSS, 1979, paragraph 4.9).

Table 5.1:   Residents saying they have enough to do with their time.

Residents:	1958-9 Men	1958-9 Women	1972
having enough to do	52%	57%	75%
uncertain	6%	6%	13%
not having enough to do	42%	37%	12%
Number of residents	191	274	803

Source: Townsend (1962, table 105), Plank (1977, table 83).

residents in a 300-bed Public Assistance Institution in April, 1944, by
Townsend (1962, p.218) on the pastime, activities and visits by residents
in 173 local authority, voluntary and private homes, and by Thomas et al
(1979, p.33) on the activities of residents in 35 group, semi-group,
and "non-group" homes, suggest that residents are able to be very much
more active today than residents of thirty years ago and that, for one
reason or another, residents are more active today. Rowntree's description
of the social life in a Public Assistance Institution in fact makes
fascinating reading in the light of subsequent research on residential care
of the elderly. Despite these advances, however, recent DHSS reviews of some
local authority homes have not been congratulatory. The Social Work
Service review of 1974-5 concluded that "life was rather monotonous for
at least some residents" (DHSS, 1976c, p.10), and another review four
years later found that "the right kind of stimulation and encouragement
of residents was lacking in many homes" (DHSS, 1979, paragraph 13.9).

(e) Communication and interaction. An important source of stimulation
is the interaction of residents with others within and outside the home,
and in this subsection I am concerned in turn with resident interactions
with staff, other residents, and the wider community.

One of the major problems facing elderly people living in the community
is loneliness and it is often this factor which precipitates entry into
residential care. A fairly crude instrument devised by Tobin & Lieberman
(1976) to examine the elderly person's perception of others as resources
successfully differentiated between those on the waiting list for residential
care and those coping adequately in the community. Admission into a
residential home should hopefully provide opportunities for more and
better interpersonal interaction and communication.

Staff-resident interactions generally reflect and determine the regime and social controls of the caring environment. Romaniuk et al (1977), focusing on the patronising statements of staff in a New York nursing home, suggested six categories: (i) suggestions and instructions - uninvited prompts in resident conversations which remove the opportunity for the residents to demonstrate their competence and self-sufficiency; (ii) requests for an explanation or clarification - unsolicited requests on behalf of residents, preventing residents from requesting information independently; (iii) summaries and restatements - again, as with (i), the staff member assumes the resident doesn't understand some information and so summarises, restates and simplifies it; (iv) comments and evaluation - unsolicited interjections in resident conversations, either to explain or compliment, which prevent resident expression of feelings and receipt of "normal" feedback; (v) leading questions - implying that the resident hadn't thought out a problem properly or completely, whilst the staff member had; and (vi) answering another's question and providing explanations - uninvited answers and statements to residents questions to other residents, assuming incompetence and incompatibility. In all cases, staff members assume that residents are not competent enough to answer, comment or comprehend, and in interjecting prevent residents' from demonstrating their competence. Negative attitudes among residential home staff, as conveyed through such patronising statements, will undoubtedly lower the residents' own self-attitudes and distort their self-perceptions. Commentators on residential care frequently stress the need for staff to chat with residents, to be helpful, considerate and understanding, and yet chat or talk which is predominantly patronising or predominantly of the kind discussed by Romaniuk et al or by Fairhurst (1978) will clearly be damaging. Perhaps it is such a predominance of "negative talk" that explains Plank's (1977) finding that residents felt they had less social contact than other groups. Residents clearly did not classify many of their contacts with staff and other residents as "seeing someone to talk to" (see also DHSS, 1979, paragraph 7.10). The hotel model envisaged by Bevan in 1948, with staff-resident relationships akin to those between proprietor and guest, hardly encouraged close friendships to develop, and Townsend (1962, pp.86-88) found few friendly interactions in the former PAIs in his study sample, although closer and more supportive relationships in the new local authority homes (pp.144-5). Many matrons

complain that staff shortages and resident dependency leave staff with little time to develop close relationships with residents, although better staff ratios do not necessarily mean better relationships (see section 4.2.2 above). Staff-resident interactions have been observed to be rather better in group living arrangements (DHSS, 1979, paragraph 4.3, 9.17; Thomas et al, 1979, paragraph 6.26).

The character of life in the home, and the quality of life of residents, will also be influenced to a considerable extent by the ability of residents to establish friendships with each other. Slater (1968) found that the level of adjustment of residents in a British home, measured on a four item self-image index and a four item self-rated health index, was related to both the number of friends in the home and the number of visitors. Adaptation to social stress among the aged has also been found to be better among those with a confidant (Lowenthal & Haven, 1968; and see the review by Bennett, 1970, p.103). On the other hand, Smith & Lipman (1972) concluded that peer interaction was only related to life satisfaction for unconstrained residents (good health and high income), a finding that lends support to Lawton's environmental docility hypothesis. This may explain why some residents feel unable to establish close friend-ships with staff and other residents within the socially constrained environment of the typical old people's home. Feelings of isolation among rational residents may be further exacerbated by the presence of too high a proportion of confused residents.

Rowntree (1947, p.64) reported one home in 1944 which forbade all contact between male and female residents, and Townsend (1962, pp.140, 222) reported similar instances of sexual segregation in 1959. Generally, resident-resident friendships were few in the homes studied by Townsend and varied between homes of different types. Townsend's conclusion was that peer interaction was greater in voluntary than in local authority homes, but this was thought to have been completely reversed by 1970 (DHSS, 1975, paragraph 2.6). Generally resident interaction was made less likely by the heterogeneity of background and interests, and certainly "in number and quality, /friendships/ fell far short of those which can be found in any local community outside" a home (Townsend, 1962, p.103). Comparing the survey findings of Townsend (especially p.348) and Plank (1977, tables 82, 91) indicates more and better peer interactions today

than two decades ago, and in part this can be attributed to improvements
in caring practices and in design (Thomas et al, 1979, paragraph 6.3;
and see section 4.3.2 above).

Resident interaction with friends and relatives outside the home
has also been found to be an important determinant of life satisfaction
in a New York retirement home (Walsh & Kiracofe, 1979). Interaction
either takes the form of participation in activities outside the home or
of visits by outsiders to the home itself. One group of regular visitors to
some old people's homes is the group of day care clients sharing the homes'
facilities. At first this was seen as a good way of introducing some
non-residents to the homes that may later become their own places of
residence, and simultaneously of helping residents to maintain links
with the community. Recently, however, doubts have been expressed about
the wisdom of mixing clients in this way. "Some staff thought that day
care attenders often brought a fresh outlook to the home but in some
instances they were thought to be resented by the residents. Clearly,
it is important that the residents' sense of 'home' should not be restricted
and day care attenders should not encroach unduly" (DHSS, 1979, paragraph
3.15). Other visitors to the home are encouraged rather more than was
the case when Rowntree (1947, p.149) reported that "only 6 residents
/out of 300!/ receive visits from friends or relatives and none are
visited by voluntary workers". Homes today are rather better located
and more welcoming than were the Public Assistance Institutions in use
at the time of Rowntree's research, and still in service in 1959
(Townsend, 1962, p.93). Homes are actively encouraged by DHSS and local
authorities to open themselves to the surrounding community, and residents
are encouraged to take part in activities outside the home, although many
are unable to do so because of infirmity. Matrons today are rather less
likely to display the "professional immaturity" of their colleagues in
1966 who resented visitors (NOPWC, 1966, paragraph 70), nor to require
residents to register for "general leave" as in 1944 (Rowntree, 1947,
p.149). But some homes were still felt "to be cut off from the local
community and many had very little community input or interest" (DHSS,
1979, paragraph 7.24).

(f) Homogeneity. Implicit in Goffman's discussion of institutional
totality and in the press models of Murray and Stern was the assumption

that a total institution strives for a "homogeneous enviromental stimulus
field", implying lack of variety, and hence lack of environmental stimuli
(Lawton, 1970a). In the gerontological context most attention has focused,
not on homogeneity of the environment as a whole, but on homogeneity of
the supra-personal environment: How similar or dissimilar are residents
with regard to such characteristics as age, sex, confusion, health, religion,
race and "class"? What degree of segregation is practiced or observed in
the home, and what are the implications for resident morale, behaviour,
and general well-being?

Supra-personal homogeneity is an amalgam of two features - social
similarity (Segregation) and proximity (Congregation). Integration and
interaction are fostered by both social similarity and proximity, although
residential propinquity is necessary, but not sufficient, for friendship
establishment (Bultena, 1968).

The most widely studied of the supra-personal dimensions is age.
Physical separation of the aged and infirm from younger members of society
protects them from role expectations based on the work ethic, whereby
personal importance is directly related to productive capacity. Age-
concentration instead allows roles, norms and value systems more appropriate
to retirement, senescence and, perhaps, disengagement to develop, and
facilitates the qualification and specification of social participation
norms, which in turn intervene between social interaction and well-being
(Bultena, 1974; Bultena & Wood, 1969; Graney, 1974; Gubrium, 1972;
Messer, 1967; Rose, 1965). Messer (1967), for example, found that the
relationship between activity and morale pertained only in age-integrated
environments. In age—segregated housing developments, the age-specific
normative system freed the elderly "from a compulsion toward continued
activity and from feelings of inadequacy associated with inactivity"
(Lawton, 1970a, p.39). Only those individuals with strong power resources;
will be able to cope with an age-heterogeneous environment (Gubrium, 1972).
However, evidence of a lack of association, or of a negative association,
has also been forthcoming. Kahana & Kahana (1970) randomly assigned elderly
admissions to a state hospital to age-integrated and age-segregated wards
and found that those on the integrated ward were superior on measures of
cognitive and social functioning after three weeks. McClannahan (1973)
and Teaff et al (1978) argued that age-heterogeneity fostered social
interaction, life satisfaction and independence. In contrast to American

nursing homes and other residential facilities, most British old people's homes have always had age homogeneity, although there was perhaps more mixing of the elderly with the younger physically handicapped in earlier years.

Segregation by sex, within age-segregated environments, is a similarly contentious subject, although there is little hard empirical evidence to call upon. Bennett & Eisdorfer (1975) cite evidence to suggest that the higher death rate of males following relocation into sexually-integrated environments is indicative of the deleterious effects of integration. Contrariwise, Silverstone & Wynter (1975) found that sexual integration of previously single sex floors in a geriatric institution, after some initial resistance, resulted in a higher affect level and more socially desirable behaviour on the part of the residents. The most recently opened purpose-built homes for the elderly cater for both men and women, in contrast to many institutions and homes in the early post-war years (see above), but this generally does not stop spatial segregation by sex, either by staff or, more commonly, by the residents themselves (DHSS, 1979, paragraph 7.18; Lipman & Slater, 1975). Sexual integration is now an explicit policy recommendation (see, for example, DHSS, 1973, paragraph 2.5.1).

A few other resident characteristics have been distinguished as important and discussed in the gerontology and policy literatures. In the gerontology literature there is some discussion of the segregation of "loners", short-stay residents, religious groups and ethnic or racial groups (Bennett & Eisdorfer, 1975; Graney, 1974; Nahemow & Bennett, 1968). The British literature has not ranged as widely as this, nor has it discussed the problems of segregation versus integration (with one notable exception), although Building Note 2 of 1973 recommended that certain types of segregation should be avoided. These include segregation by like-lihood of rehabilitation, segregation of the blind or deaf, and segregation of those "who are unable or unwilling in old age to conform to standards of behaviour which, elsewhere, they have rejected" (DHSS, 1973, pp.1-2). The DHSS (1979) report reiterated many of these recommendations. Another characteristic sometimes discussed is "social background", and in the early post-war years it was hoped that raising the standards of residential accommodation would attract residents from all backgrounds and income

groups (see Davies, 1968, p.65). However, the homogeneity of residents with respect to independence and "class" was also held to foster resident participation in activities within the home (Davies, 1968, p.71; DHSS, 1975).

In the British literature the most frequently discussed form of segregation is by degree of confusion, dementia, or mental status. The arguments for and against segregation of the elderly mentally infirm (EMI) have been voiced time and again but still there is no agreement. The arguments for integration point out that confused residents are not necessarily permanently confused, that integration with the non-confused enhances their own chances of "recovery", that non-confused residents thereby have a chance to enhance their own competence, that segregation can lead to stigmatisation and eventually aggression, both between and within groups, that segregation means discontinuity of care for a most vulnerable group, that staff are more likely to treat confused residents "normally" when they are integrated, and that marginal placement decisions by staff are very difficult indeed. The counter arguments in favour of segregation of the EMI more or less contradict each of these statements in turn! It is argued that integration deprives the non-confused residents of physical freedom, social autonomy and so on, that segregation makes it easier and more economical to employ the specialised care staff required to look after the confused elderly, that staff in integrated settings have less time for the non-confused, that integration and not segregation, is the root of aggression, and that the habits and behaviour of the confused residents upsets the non-confused residents, particularly at mealtimes, in lounges and in shared bedrooms. These arguments have been discussed recently by DHSS (1979, chapter 7), PSSC (1977, paragraph 2.18), Thomas et al (1979, paragraph 7.16-7.21) and Thomas et al (1977, p.23). In the American literature, the studies by Graney (1974), Schoenberg et al (1972) and Snyder et al (1978) are of interest.

Official government policy has generally favoured segregation of the confused and rational elderly. Segregation was recommended in the revised Building Note (DHSS, 1973, paragraph 2.5.5) and in Scottish policy statements of about the same time (see Carstairs & Morrison, 1971, paragraph 7.52). In August 1976, the DHSS commissioned research from Wyvern Partnership and Birmingham University to identify, among other things,

"the problems of designing homes for the elderly in which EMI residents
are to occupy a discrete (separate) part". However, the Social Work
Service report three years later was unable to reach a conclusion regarding
segregation (DHSS, 1979), and the PSSC review felt that "In most homes
the residents can accept a few people who are mentally confused, depending
on the nature of their confusion. Where an imbalance is created, however,
normal life is disrupted and not only do the alert residents suffer,
but those who are mentally confused become the victims of intolerance"
(PSSC, 1977, paragraph 2.18).

(g) Continuity. The continuity of the physical and social environments
of elderly people, and indeed the continuity of every aspect of their life-
styles, is the final important determinant of behaviour, well-being and
survival discussed here. The sources of discontinuity are many and various,
but in the context of residential care it is particularly the experience
of relocation to and between residential homes that most concerns us.
This, too, has been one of the most popular topics of gerontological research,
particularly since Carp's (1966) study of elderly persons moving into
apartment dwellings. Tobin & Lieberman (1976) are among a number of
researchers who have suggested that it is the act and experience of moving
into an institution which accounts for many of the noxious effects often
attributed to living within an institution.

Schulz & Brenner (1977) argue that, because relocation is generally
a stressful experience, its impact can be lessened by increasing both the
controllability and predictability of the relocation. Controllability
refers to the voluntary/involuntary nature of the move, whilst predictability
"is inversely related to the severity of the environmental change ... and
directly related to the amount of preparation given individuals before
the move" (ibid, p.324). This simple theoretical framework is similar
in many respects to that of Tobin & Lieberman: "The larger the difference
between the new and old environment - with expectations (anticipated
losses) being equal - the greater the possibility that the elderly person
will need to develop adaptive responses often beyond his capacity. In
this light, the effect of an institution can be viewed less as a product
of its quality or characteristics than of the degree to which it forces
the person to make new or overtaxing adaptive responses" (Tobin & Lieberman,

1976, p.20). Furthermore, because the ageing individual's adaptive capacity or competence is deteriorating steadily, the chances of his coping with the new environment will be lessened, and the chances of demoralisation increased. (See Nehrke et al, 1979, for recent evidence.)

The effects of relocation were initially measured in terms of survival rates and morbidity levels alone, but later studies have extended the list of impact dimensions to include most salient psychological and psycho-social factors. Using one or more of these impact criteria, the empirical studies of relocation largely support the theoretical propositions of Schulz & Brenner, and of Tobin & Lieberman. Voluntary relocation is less harmful than involuntary relocation, suitable preparation neutralises many of the deleterious effects, and "similar" environments are less harmful than "dissimilar" environments. (See Schulz & Brenner, 1977, for a review).

Attempts to lessen the severity of relocation from a home environment to an institutional one in the British context at least, have largely followed these recommendations. Although voluntary entry into an old people's home will be increasingly rare during a period in which potential residents are both more numerous, more frail, and more confused, it is still possible for administrators, social workers and relatives to prepare the potential resident more thoroughly and to lessen the extent of the environmental change by personalising the new resident's room in the home. It has long been recommended that residents be allowed to bring their own furniture and personal belongings into the home. Rowntree (1947) made this recommendation so that the new "homes" would stand in contrast to the depersonalising "institutions", and Ministry of Health and DHSS policy statements have encouraged local authorities and matrons to allow such personalisation (Circular 3/55; Boucher, 1957; DHSS, 1973, paragraph 3.26; DHSS, 1977a). The ex-PAIs still in use in 1958-59 allowed few personal possessions to be brought into the homes, but Townsend (1962, p.132) found very few of the new homes which were noticeably better in this respect. The percentages of new residents allowed to bring at least one article of furniture into the home ranged from 3% in ex-PAIs and 19% in other local authority homes to 55% in private homes and 72% in voluntary homes (ibid, p.221). These differences were also noted by Shenfield (1957): "Voluntary homes more often than

local authorities encouraged residents to bring their own furniture and
other personal possessions within the limits of the room available,
and though this is not advocated primarily for reasons of economy, but
rather to help elderly residents settle down in new surroundings, it
does help to reduce the cost of furnishings in a home" (ibid, p.159).
More homes today tend to encourage residents to bring items of furniture
and other personal possessions with them into the home, but recent
studies have revealed differences between the letter and the spirit of
this encouragement. The revised Building Note simply stated that "the
point of enabling residents to bring personal possessions to the home is
lost if thought is not given to their display in the room or easy access
to those stored in the room or elsewhere" (DHSS, 1973, paragraph 4.7),
and the two Social Work Service studies of residential care revealed that
often "personal belongings appeared to be tolerated rather than encouraged"
(DHSS, 1976c, p.17) and a variety of strategies were adopted to keep
them to a minimum (DHSS, 1979, paragraph 3.11). Personalisation of
rooms has not been helped by the increasing tendency to have fitted
bedrooms in homes (Dorset County Council, 1977, paragraph 7.12). Sherman
& Newman (1977) provide verification of the importance of cherished
personal possessions - the lack of a cherished possession was found to be
associated with lower scores on Neugarten's life satisfaction index.

The nub of the Tobin & Lieberman thesis is that behaviour, affect
and general well-being within the old people's home are the product of both
the characteristics of the institution itself and the experience of
relocation. These two authors have, to the best of my knowledge,
conducted the only study that attempted to weigh up the relative effects
of environmental discontinuity and enviromental characteristics per se.
Although they had difficulty disentangling the effects of environmental
discontinuity from those of institutional life, the data from a sample
of 100 persons studied over a period of four years suggested that
discontinuity had a critical impact, especially on well-being one year
after admission to the home. "Those who manifested the extreme outcomes
of a marked deterioration or death were more likely to have lived
transitionally in nursing homes, to be more passive and to exhibit physical
deterioration, as well as emotional reactions, shortly after admission.
These findings taken together suggest that the move itself is taxing"
(ibid, p.219). Three additional studies by Lieberman (1974) support this

conclusion. Individuals most likely to suffer adversely as a result of environmental discontinuity are more passive, less able to mobilise psychological coping resources, and more physically debilitated.

5.3 Resident Characteristics and Experiences

In this section I am concerned with personal rather than social or resource factors which influence output, particularly personality differences and habitual style of life, the importance of events immediately prior to admission, individual characteristics at the point of entry, and the process of adjustment to the home.

5.3.1 Resident Personality

Which traits of resident personality appear to produce well-being among the elderly? Mention has already been made of the combination of personality and environmental characteristics in the determination of well-being stressed in the ecological congruence models of human behaviour provided by Lewin, Murray, Moos, Lawton and others. In this section I move on from this to discuss personality characteristics and particularly to consider the work of Turner and her colleagues at the University of Chicago.

The basic assumption of Turner's work is that "those aged with pre-institutional personality traits that are congruent with the specific demands of the relocation environment will experience a minimum of distress due to relocation. Such congruent personality traits may facilitate adaptation because the impact of relocation is lessened when there is fit between traits and specific adaptive demands of the environment. In this approach the unit of analysis becomes the person-environment relationship in which situational demands determine the predictive power of personality traits" (Turner, Tobin & Lieberman, 1972, p.61). In a study of 85 elderly people before and after entry to a home, Turner distinguished nine personality traits, each of which was assumed to relate to successful institutional adaptation. The traits were: activity-passivity; aggression; narcissistic body image; authoritarian; status drive; distrust of others; non-empathy; extrapunitive; and non-intrapunitive (Turner, 1969). It was assumed that high positive scores on each of these dimensions indicated a greater degree of congruence with the institutional setting. The nine congruence traits were submitted to a

principal components analysis, and four factors emerged, named as:
punitive-authoritarian, aggressiveness, non-reflective, and unfriendly.
For the purposes of predicting adaptation and adjustment, however, a single
total congruence score was used. This score was found to be independent
of cognitive functioning and feelings of dominance, but related to
denial of impending institutionalisation (those with higher congruence
tend to deny less), and a measure of mental health (higher congruence
associated with more psychopathology). Individuals revealing higher
congruence between personality traits and institutional setting also
had lower feelings of well-being, more anxiety, better quality of
inter-personal relations, and described themselves as less loving. This
variety of associations implies a complex adaptation process. In
general, however, a person who has such personality traits as those
distinguished above "may not experience the initial impact of severe
environmental stressors, whereas the aged person without such traits may
react adversely to initial impact and, because of physical fragility, show
consequent morbidity or die" (Turner et al, 1972, p.67).[10]

5.3.2. Experiences Prior to Admission   There have been few longitudinal
studies of elderly people prior to and following entry to an old people's
home, a fact not unrelated to the cost of such a study. Turner's
work on the predictive qualities of personality is one of the few and in
fact comprised part of a much larger longitudinal study directed by Tobin
and Lieberman, which was discussed above.

Experiences prior to admission are of two kinds - major events in
the resident's life history, and factors experienced in the process of
becoming a resident (admission and waiting). The first of these appears
to have received little attention, not only in the academic and policy
literatures, but by heads of homes and social services departments (DHSS,
1979, paragraph 13.7). Maas & Kuypers (1974) emphasise the importance
of the "life review" in their report of a forty year longitudinal study
of adult life styles and personality. "For those small proportions in

[10] It is simply impossible to piece together the few fragments of evidence
on the personality characteristics of residents in British homes to
obtain a picture of the post-war period. The research by Savage et
al (1977) is of some interest here.

our study whose personalities and life styles seem problematic, it is
not merely old age that has ushered in the dissatisfactions and the
suffering. In early adulthood these men and women were in various ways
at odds with others and themselves or too constricted in their involvements.
Old age merely continues for them what earlier years have launched"
(Maas & Kuypers, 1974, p.215). This longitudinal study is very useful
for its conceptual framework for the description of life styles. Maas
and Kuypers distinguish a dozen "arenas" of life style (home and visiting,
work and leisure, marriage, and so on) as well as four dimensions of
life style: interaction, involvement, satisfaction and perception of
change. This framework is of some interest for predicting who it is
that enters a home, their environmental needs once admitted, and their
general well-being. The nearest the British literature has come to this
kind of exercise is a classification of the reasons for entry to a home,
the kind of classification undertaken at amazing regularity for all manner
of reasons. Such information is of no interest here, although the
number of residents admitted as "emergencies", and thus given no
opportunity to prepare for admission, will be discussed below.

The British social work literature has recently devoted some
attention to the preparation of a resident before admission to a home.
The essential characteristics and components of preparation have been
discussed, for example, by Brearley (1977, pp.56-57), BASW (1977, p.11),
PSSC (1977, p.23), Pope (1978) and Farquhar(1977), and recent DHSS
publications have emphasised the importance of adequate preparation (DHSS,
1976c, 1978, 1979). Ideally, residents should themselves make the
decision to enter a home, should be able to choose between a number of
homes, should have opportunities to visit the home and meet the staff,
and might perhaps even progress to residence through attached day care
and sheltered housing facilities. This kind of preparation has been
found to be associated with less anticipated loss and perceived loss,
and with better adjustment, in America (Dominic, Greenblatt & Stotsky,
1968; Stotsky, 1967). Unfortunately, even for those residents not
admitted as emergencies, there is little adequate preparation (Bosanquet,
1978, p.111; DHSS, 1976c, pp.7-8; DHSS, 1979, paragraph 3.6; Harris,
1968, p.48; Townsend, 1962, pp.240-3). There are an increasing number
of short stay admissions to old people's homes, which may improve
preparation, but Lynes & Woolacott (1976) reckoned that at the very

most, 9% of these short stay admissions were actually trial admissions. Another noticeable feature of recent years has been the increasing proportion of emergency admissions, estimated to be as much as 50% in some authorities (DHSS, 1976c, p.7), and this is partly an indication of the excess need for residential care and partly a reflection of the increasing abuse of the emergency admissions procedure (DHSS, 1979, paragraph 3.13). It would be interesting to examine the dependency characteristics of residents admitted as emergencies to see if the average dependency level had decreased over time, either absolutely or in relation to "normal" admissions.

5.3.3 Characteristics at the Point of Entry   Indicators of output measure changes in the state of welfare over time due to the impact of the institution. Arguably the initial states of a resident can effect this change considerably. Individual characteristics at the point of entry will often reflect the very reasons for admission to residential care - poor physical health or functioning, loneliness, depression, or anxiety about independent living for example - and certainly will be influenced in part by the amount of preparation afforded the resident before admission. A number of characteristics have been identified or suggested as important determinants of the subsequent well-being of the resident, and are thus included as quasi-inputs in our production of welfare model.[11]

(a) Firstly, the attitudes of the newly admitted resident will be crucially important in determining the outcomes of institutional care. An elderly person admitted involuntarily will be expected to fare less well than a person voluntarily entering the home. Schulz & Brenner (1977) review a number of studies which collectively support this hypothesis, and conclude that the evidence that voluntary entrants fare better than involuntary entrants is "compelling" (p.327). A recent Canadian study provides further support. Spasoff et al (1978) studied just over three

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[11] The sources of admission (i.e., place of residence before entry to home) are frequently tabulated, in British studies at least. These have also been shown to have changed over time (Townsend, 1962; Institute of Operational Research, 1972, p.7a; DHSS, 1975, p.23; DHSS, 1979) but there is no evidence to suggest that source of admission is related to output.

hundred applicants for "chronic care" in Ontario and found that: "those with a more favourable attitude toward the move at the initial interview (either before or soon after admission) more often expressed satisfaction at the follow-up (approximately one month after admission), although even of those with an initially negative attitude three-quarters were now satisfied" (ibid, pp.284-5). Spasoff and his colleagues themselves have some doubts about the validity of these findings, however (p.286), and a further complication arises from the fact that the elderly subjects were sometimes interviewed after admission, by which time the impact of admission and the environment of the home itself will almost certainly have had some effect.

(b) Secondly, there is evidence about the impact of psychological well-being and adjustment at the time of entry into the home. Morris (1974, 1975) studied a group of elderly applicants to a "long-term care facility", some of whom were admitted during the five year study period, and others not. Morris found that those in greatest need by clinical criteria tended to have the lowest scores on the Life Progression component of the PGC morale scale but had, on average, increased their scores during the subsequent year. This was the only group in his sample of 269 to have increased their score. On average, this group also showed a slight, but not significant, increase in scores on other components. In the same vein, Oberleder felt that "the old person who is able to deny reality ... and at the same time is able to engage in compensatory, even escape-type activity, may perhaps possess the most effective combination of traits for adjustment in a home for the aged" (Oberleder, 1962, p.31). Again it seems that Turner (1969) concluded that being aggressive, distrustful and hostile towards others can help in the adjustment process.

(c) Physical health and capacity for self-care are also known to have an influence on subsequent well-being. For instance, Morris (1975) found that those who perceived that their health had improved over a twelve month period had also improved in morale. This however, is not an unambiguous result - the mood component in self-perceived health is substantial and there is the possibility of a regression effect. In an earlier section (3.6.2) I attempted to compare the physical capacities of new entrants to British old people's homes at different points in

time, but the almost total dearth of suitable data and the many
differences in methodology made this impossible. Voluntary homes
have always tended to impose much stricter criteria than local authority
homes (NCCOP & Age Concern, 1977, p.8; Townsend, 1962, pp.175, 262)
and this probably reflects a desire to keep costs down.

(d) The literature also demonstrates the relevance of mental impair-
ment. Organic brain damage has been shown to predispose towards
increased morbidity and mortality at relocation because the senile
psychotic cannot prepare for change and lacks adaptive responses. The
senile psychotic person, although not sufficiently in contact to understand
advance explanations of a move, is nevertheless sufficiently alert to
recognise and respond to familiar environmental cues. The removal of
these cues and their replacement with unfamiliar environmental stimuli
results in cognitive dissonance and disturbance which is greater the
less the aged individual's adaptive capacity to cope.

5.3.4   Admission, Adjustment and Institutionalisation   The reactions
of residents depend not only on the type of quasi-input factor
discussed above; they are also qualitatively different at the different
stages of adjustment. The social work literature differentiates
three stages of the adjustment process - that of decision and preparation,
that of impact, and that of settling in. The importance of an adequate
preparation for life in an old people's home was discussed above. In
this section I am concerned with the second and third stages - the
impact of admission and the period of 'settling in', this latter
stage itself often having two components - adjustment[12] and institution-
alisation. Adjustment need not necessarily mean the apathy, withdrawal
or submissiveness that has been called "institutionalisation", but
the vulnerability of residents in their first few days in the home and
the apparent hostility of many residential environments frequently render
the two indistinguishable.

The admission process is crucially important in determining virtually

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[12] The term adjustment is used here simply to mean "adjustment to the
residential home". The term is not used in the sense commonly assumed
in the American gerontological literature - that is, adjustment to
ageing as the attainment of some global concept of well-being.

every aspect of the resident's future life in the home. Pope (1978)
discusses three aspects of admission that make it so important: (a)
"the impact that the actual admission appears to have upon the people
concerned";[13] (b) "the admission practices and the implications that
these may have for the subsequent life of the residents"; and (c) the
fact that "whilst an admission may represent the ending of one phase of
life it is also the beginning of another. Thus it provides the
opportunity to reassess and on occasion revitalise the life of the
elderly person to give a greater satisfaction or security to life than
was hitherto the case" (ibid, pp.12-13).

During the impact stage most elderly residents will experience
grief, helplessness, anger, and depression (Yawney & Slover, 1973).
Parkes (1972) discusses how shock and numbness give way to anxiety and
distress, and then to reorganisation and redirection of feelings. Much
higher mortality and morbidity rates have been observed during the
impact stage (Aldrich, 1964; Lieberman, 1961; Pope, 1978; Smith & Lowther,
1976; Yawney & Slover, 1973), although researchers have not always used
the same time scale in their studies (see also section 3.3.3 above).
It is also clear that many residents have an unrealistically favourable
view of the home during the early part of the impact stage.

The length of the impact stage has been operationally defined as the
period "from the end of the first day until the new resident looks on
the home as 'home'" (Pope, 1978, p.14) or, alternatively, as the time
it takes to lift the newly admitted aged person from his initial
feelings of dissonance and disorientation to a mastering of the new
environment (Yawney & Slover, 1973) or submission to that environment.
Yawney & Slover argue that it takes between one and half and six months
for the resident to adjust, Bennett (1963) estimated that it took at
least two months for the loss of self to dawn upon new entrants, and
Rodstein, Savitsky & Starkman (1976) estimated that over three-quarters
of new residents had overcome any problems of adjustment within six
months of admission. Contrariwise, Spasoff et al (1978) felt that

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[13] It is revealing to compare the admission procedures in some ex-PAIs
in Townsend's sample with those of today. See Townsend (1962, pp.
89-92) and DHSS (1979).

"by one month after admission most of the subjects had made a fairly satisfactory adjustment to institutional life" (ibid, p.286). Of course, these studies have all been conducted in the North American context where both the characteristics presented by residents at the point of entry and the environments of the homes may well be different from those typical of the British old people's home. Bennett & Nahemow (1965, 1965a, 1972) have analysed the process that leads to adjustment. They argue that socialisation, the process of learning the norms and mores of the home, is a pre-requisite for, but distinct from, adjustment. Adjustment has three components: integration (participation in activities, the membership of informal groups, and friendships - including the conversational integration emphasised by Meacher), evaluation (the development of opinions regarding specific aspects of life in the home), and conformity (behaviour enacted in accordance with social norms). Socialisation, conceptualised as an intervening mechanism between experience prior to entry and subsequent adjustment, was found to be a predictor of adjustment after one, two and six months of residence, indicating the importance of rapid social learning. Learning was not fully complete, however, sometimes until two years had elapsed. Furthermore, the probability that socialisation will lead to integration, evaluation and conformity clearly depends upon the degree of anabolism of the social environment.

Spasoff et al (1978) report a longitudinal study of a sample of 300 elderly residents in Ontario long-term care institutions (chronic hospitals, psychiatric hospitals, nursing homes, homes for the aged, and foster homes supervised by homes for the aged). Interviews were conducted before or immediately after admission, after approximately one month in the institution, and after one year in the institution. The changes in resident well-being and activity were observed by the researchers using both objective indicators and the subjective assessments of residents, their relatives, and staff. These changes paint a fairly clear picture of the processes of adjustment to long-term care, although the variety of caring environments studied and the variety of characteristics presented by the elderly at the point of admission will render these processes untypical of those to be found in homes for the aged alone. Further differences between Canadian and British policies, and hence differences in the inputs and quasi-inputs entering the

production of welfare process at each and every level, will mean that the phasing of adjustment in British old people's homes may differ somewhat.

After one month in the institution, Spasoff noted little change in the amount of inactivity ("sitting for hours on end doing nothing"), less involvement in social and recreational activities, greater dependency in the activities of daily living, and improved psychological status. These findings led the researchers to conclude that most of the elderly had "satisfactorily adjusted to institutional life" after one month. One year after admission, 25% of the original entrants had died and 6% had been discharged. Observed changes between one month and one year after admission included: lower activity rates, development of new health problems (mostly physical problems), and a drop in satisfaction with the physical and emotional aspects of care. Perhaps of more interest, were the findings that there were no significant changes in visiting by relatives and friends, use of tele- phone, concern regarding privacy, enjoyment of the company of other residents, dependency, psychological state and general satisfaction with the home. Significantly more residents reported having close friends in the institution.

Adjustment to the home may not always be successful. Residents who survive the impact of admission may display the characteristics of apathy, withdrawal, disinterest, resignation and submissiveness (Bates, 1976, pp.26-30). Such institutionalisation or "institutional neurosis" (Barton, 1966) develops from initial feelings of incompetence at the point of entry, feelings which are reinforced by the dominance, restrictiveness, impersonality and "totality" of the home environment (Kutner, 1969).

The development of institutionalisation, like the process of adjustment, takes place in a series of stages, each of which varies in symptomatology. Yawney & Slover (1973) give one account of the dangers during the period of adjustment for a resident who is "suggestible", lacking in confidence and generally feeling "incompetent". Deprived of cultural and social reinforcement, the resident develops doubts about his or her physical and mental conditions (induced by the expectation of staff and others), in turn leading to the acceptance of a passive role

and diminished interest in personal care. Identification of the self
with others in the institution then follows, itself leading to
psycho-social degradation and with it the progressive loss of personal
skills and actual (rather than felt) competence. Of course, in a
situation where adjustment would be made to an environment that can
yield only a low level of life satisfaction, an unwillingness or
inability to adjust can actually in some circumstances contribute to
life satisfaction. The findings of Oberleder and Turner already
mentioned are compatible with this view.

5.4 Conclusion

It appears, therefore, that not only will the pattern and rate of
reaction of residents differ greatly (for reasons that will be clear from
the argument of various parts of this and other chapters), but also that
the symptomatology will vary between stages in the experience of
institutional life and also with the anabolic characteristics of the
social environment. It does not seem to us that ground work research
on the description of adaptation processes of individual residents to
life in different kinds of homes has been carried out with the extensiveness
and rigour which allow one to make firm judgements about the importance
of the various non-resource inputs discussed in this chapter and their
impact on resident welfare. The production of welfare process in old
people's homes is both broadly-based and complex. To disentangle reliably
the influences of the resource inputs of the environment, of residents'
characteristics at the point of entry, and of experiences in the process
of becoming a resident will thus require a very carefully designed
empirical study. The use of a change measure of individual well-being
to reflect a major part of the output of an old people's home complicates
the model yet further, for it will be dangerous to place undue reliance
on indicators of residents' well-being obtained at, or shortly after,
the point of entry.

Chapter 6   EFFICIENCY IN CARE

6.1 From Theoretical Exposition to Empirical Investigation

The production of welfare perspective on residential care of the
elderly has now been fully described. The major components of the
perspective have been introduced, defined and illustrated, the
techniques of measurement have in many cases been discussed, and the
causal and tautological links between the concepts have been described
and occasionally examined in some detail. The production of welfare
perspective has also been used as a framework for examining historical
developments in residential care services, and has itself been partially
verified by these very developments and experiences. Chapters 1 to
5 taken together therefore provide a comprehensive, and hopefully
coherent, account of the basic production of welfare approach. The
aim of chapters 6 to 11 will be to develop this basic model of care
and to suggest how empirical (including quantitative) research can
be employed in order to answer many of the most important policy questions.
In some instances, empirical investigation has been undertaken and will
be presented. It is the primary aim of the present chapter to pull
together the concepts and relationships discussed in chapters 1 - 5
and to set the scene for the empirical studies which follow.

Thus far, this thesis has really done no more than to define concepts
and report those causal and definitional links between concepts which
have been hypothesised or verified in previous research on residential
care of the elderly or related services. Hopefully this has been done
in a way which is novel and useful, but, all the same, I have so far
only defined what is meant by the "inputs" into and the "outputs" from
residential care and made some tentative suggestions about the "production
function" which links them. It is now time to specify the production
function and the other causal or tautological links with more care and
more precision, and to describe the modes of "efficiency analysis" which
such a specification suggests,

It is clear from the description of the production of welfare approach
that most previous approaches to policy making for care of the elderly,
and for the personal social services generally, have been inadequate in

one or more ways. Precious few policy documents or intellectual schemata
have satisfactorily specified both the outputs of care or the inputs
into care. The relatively few forays of economists into the social
care field have nearly all neglected the output side of the production
relationship. Granted the definition and measurement of output
presents a major obstacle to the researcher not well versed in some
of the finer points of social gerontology or applied or developmental
psychology, but economists have been excessively obtuse in this particular
policy area.[1] The collected publications of accountants are little
better. Unhindered and uncriticised by his economics colleagues,
the accountant has tended to produce, on a regular annual basis,
mighty tomes of cost figures, always beautifully tabulated and frequently
illustrated with tender loving care.[2] Once again, there is no attempt
to measure, or even to mention, the outputs of the services whose annual
costs are so lovingly reported. Of course there are exceptions to these
caricatured descriptions; Alan Williams, for example, is one of the
few economists to see the need for proper output measurement, and an
Institute of Municipal Treasurers and Accountants' working party report
has indicated an awareness of a need to go beyond columns of costs
when formulating policies (IMTA, 1972; Williams, 1978; Williams &
Anderson, 1975). On the other hand, policy research or policy writing
by social administrators and social workers (among others) has tended
to neglect the input side of the production relationship, focusing solely
on the well-being of clients and/or something called the "quality of
care". Attempts are sometimes made to relate well-being to programmes
or patterns of care, or to different caring milieux, but resource
inputs seem to have been almost studiously ignored in all but the most

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[1] In the extreme this has led to the measurement of public sector output
in terms of labour inputs, which has in turn given rise to some
widely criticised macroeconomic policy recommendations (Bacon &
Eltis, 1976).

[2] In the extreme this practice has encouraged the compilation of "league
tables", generally by local authorities, to illustrate how "generous"
or how "badly off" they are in comparison to others.

recent of policy research.[3]

The discussion in the first five chapters of this thesis has already emphasised the multidimensionality of output, and the need to measure it at as "final" a stage as possible, as well as the predictive or determinative importance of a whole host of resource and non-resource factors. To neglect any of these outputs or inputs can only mean a second-best approximation to the caring processes and procedures which characterise the "real world". Of course, this sets up the first-best approximation as an almost unattainable ideal but one which is neverthe-less worth aiming towards. An empirical study which included most outputs and most inputs would be extremely expensive to undertake, and certainly it was impossible to get very near to such a study in the research reported here. However, provided we are clear of the general (if vague) outline of the production of welfare perspective, and that means recognising the most important outputs, inputs and causal linkages, then we may validly nibble away at the empirical model to provide answers, if often only tentative answers, to some of the more important policy questions. That is the approach, and the philosophy behind the approach, adopted in chapters 7 to 11 below. Each chapter takes a part-icular set of policy questions, a suitable research tool or technique and a set of (secondary) data, combines them in a suitable manner, and concludes with some tentative policy indicators. The theme which links these chapters is efficiency,[4] which is defined more rigorously in the next section.

Before examing the concept of efficiency more carefully, it is

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[3] George Maddox recently wrote that "In the United Kingdom, where it would be feasible to design and implement research on the cost-effectiveness of various components of an integrated care system, there appears to be little interest in doing so. In the United States, where it for all practical purposes impossible to implement adequate research on cost-effectiveness of an fragmented non-system of services, there is a preoccupation with assessing cost" (Maddox, 1977, p.154). This should not be interpreted, however, as implying that American research is significantly better than our own British offerings. The "review" by Pollak (1976) and Doherty & Hicks (1975) reveal a sizeable amount of research of somewhat limited utility.

[4] The production of welfare approach, being a derivative of the economist's theory of production, immediately suggests this focus on efficiency. This is not its only virtue; the approach may usefully be employed in the study of, inter alia, equity (cf. Boadway, 1976), particularly with resource allocation in mind (Bebbington & Davies, 1980), and the efficacy of alternative organisational structures or managerial models (cf., Culyer, 1976).

useful to set out the main components and linkages of the production of welfare model. This is done in Figure 6.1, where the direction of each arrow indicates the direction of causality or definition. The modes of "efficiency analysis" are also marked on the diagram, and the relevant chapters of the thesis are noted where appropriate. Some of the efficiency analyses that are possible are not marked in this figure (cost-benefit and cost-effectiveness analyses are examples), but are discussed below. Others which are marked on the figure, such as production functions for final outputs, are not attempted in this thesis.

6.2   Efficiency in Social Care

The pursuit of efficiency is the pursuit of an allocation of inputs which generates the maximum possible output.[5] Inefficiency in the use of inputs thus means that these inputs could be reallocated, but not increased, in a way which would increase the production of output or outputs. The concept of efficiency is thus straightforward, although there is a large number of alternative basic definitions and conceptualisations both within economics and elsewhere. No review of these alternatives is attempted here but it is necessary to introduce a number of efficiency constructs for future use.

Efficiency can be studied at so many different levels of generality and specificity that a single concept is insufficient. The most frequently discussed concept is Pareto efficiency, which pertains when no input or output can be reallocated to make someone or some group better off without simultaneously making some other person or group worse off. Pareto efficiency requires efficiency in production, efficiency in consumption, and efficiency in the integration of these two activities. Pareto efficiency is an unattainable ideal, based as it is on a number of often unrealistic assumptions. For our purposes we can confine our attentions to efficiency in production, although some more general comments will be useful later on. We can distinguish a number of useful constructs:

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[5] Many definitions in economics talk about the allocation of resources to maximise social benefits. This terminology is avoided here because of the importance of non-resource inputs and the particular definition accorded benefits below.

Figure 6.1   The Production of Welfare Model
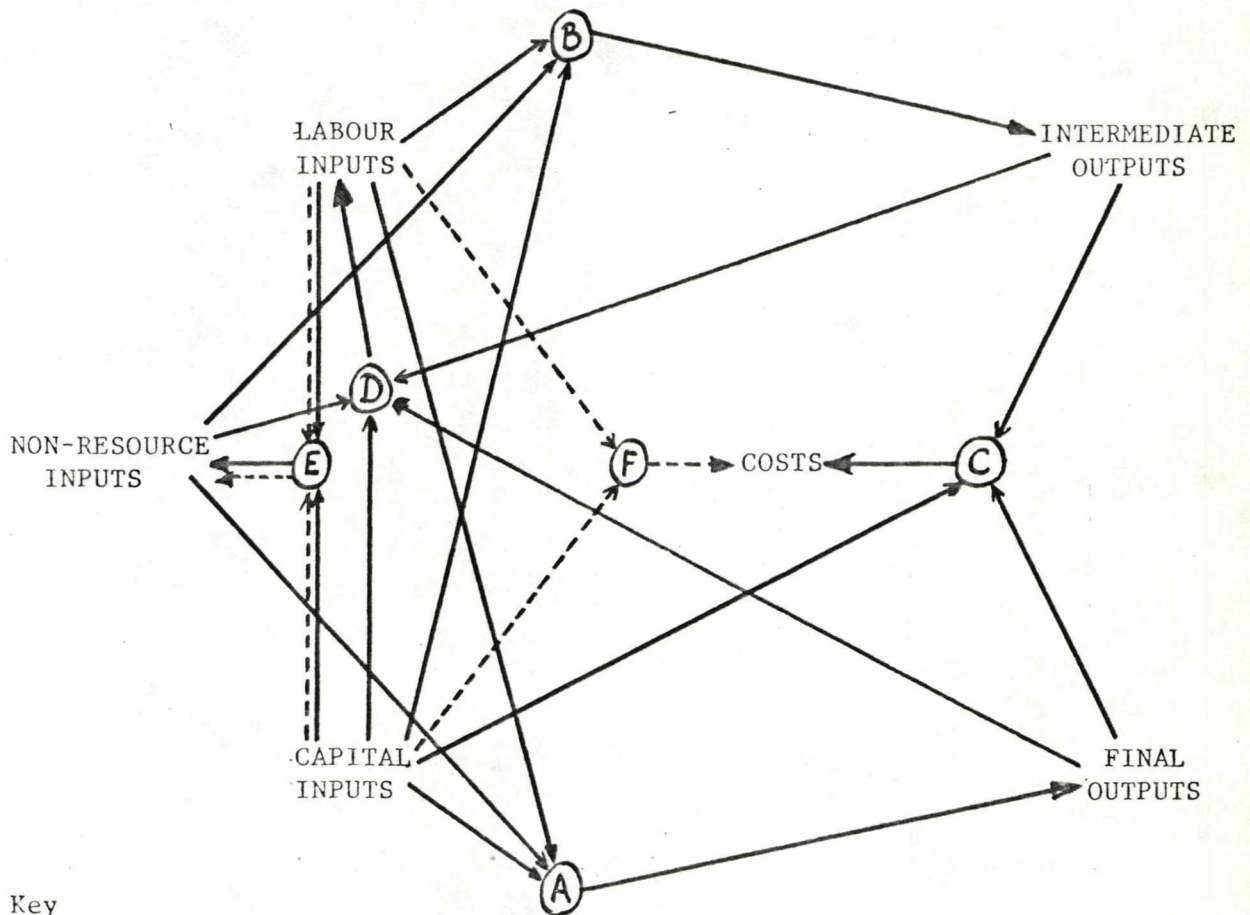
Key

⟶ indicates causal relationships, arrow points in direction of causality

- - -▶ indicates definitional relationship, arrow points in direction of definition

◯ indicates mode of "efficiency analysis" or definition as follows:
  A: production function for final outputs (chapters 3-5)
  B: production function for intermediate outputs (chapter 8)
  C: cost function (chapter 7)
  D: employment and labour turnover relationships (chapters 9 and 10)
  E: resource inputs causally (and definitionally) determine some non-resource inputs
  F: cost equation (chapter 7)

There will also be causal and tautological relationships within components of the model (e.g. resident characteristics will in part determine the social environment, and vice versa).

effectiveness, technical efficiency, price efficiency, and social efficiency.

Effectiveness refers to a simple increase in output following the introduction of an additional unit of input. An effective production process is simply a process which produces something, although no comment is made about the inputs that have been used. A basic requirement for efficiency is effectiveness in production. Closely related is the concept of productivity, the capacity to produce, which can be simply defined as the ratio of output to input. Problems have arisen with productivity measurement in the past, mainly because of the undue reliance placed on single outputs or single inputs. In many studies, productivity is measured simply as labour productivity, and this immediately gives rise to problems if capital inputs are not equally distributed or of equal quality in the different firms or plants under consideration. When more than one output is used, and when more than one input is considered, there are considerable difficulties of aggregation. Nevertheless, productivity measurement has been accomplished successfully in a number of areas (cf. Christensen, Cummings & Jorgensen, 1975; Kennedy & Thirlwall, 1972) and recently interestingly in health contexts (e.g., see Ruchlin & Leveson, 1974, 1977). Of course, productivity measures which take account of all inputs (and possibly, too, all outputs) are little different from measures of technical efficiency. Measures of productivity and technical efficiency are presented in chapter 8 below. It is useful to distinguish productivity as a separate concept for a number of reasons, one of which is the relationship between labour productivity and the concept of X-efficiency. "When an input is not used effectively, the difference between the actual output and the maximum output attributable to that input is a measure of the degree of X-efficiency" (Leibenstein, 1978, p.17; see also Leibenstein, 1979; and Hampson, 1979). X-efficiency is not discussed in any great detail here, although it will appear again as a plausible partial explanation for diseconomies of scale (chapter 7) and is of some relevance in the study of labour turnover (chapter 10). Effectiveness, productivity and X-efficiency are really concerned with the performance of individual inputs, and particularly individual staff members, employed by a firm or plant (at least when measured in practice). We are generally concerned with more than just one or two inputs and efficiency

is usually held to be a firm-level or plant-level concept: "efficiency is a statement about the performance of processes transforming a set of inputs into a set of outputs"(Førsund & Hjalmarsson, 1974, p.41).

It is useful to make the distinction between technical efficiency and price efficiency, although it is well known that in some respects the distinction is arbitrary and made only for computational convenience (Farrell, 1957; Fisher, 1976). A firm or plant is fully technically efficient[6] when it produces the maximum set of outputs from a given amount of inputs; or, as Sen (1975) more precisely states, "in a set S of attainable production possibilities with given resources, a bundle x is efficient if there is no other attainable bundle in S such that it produces more of at least one of the commodities and no less of any others." With one output Q and two inputs X_1 and X_2 the technical efficiency requirement is readily illustrated in the conventional isoquant diagram (under the additional assumption of constant returns to scale) which is presented below. With a number of alternative production processes for a single output or for a production unit producing a number of distinct outputs, inputs should be transferred to alternative uses in such a way as to equalise their marginal productivities in alternative uses. Price efficiency, as its name suggests, is attained by a production unit when it employs the various inputs in such proportions as to produce a given level of output at minimum cost. Under certain assumptions as to production behaviour, such as cost-minimisation or profit-maximisation, price efficiency is attained when the ratio of input marginal productivities equals the corresponding ratio of input prices.

The distinction between technical and price efficiency is perhaps best illustrated with the help of Farrell's much-drawn isoquant diagram. For simplicity assume a single output, two inputs and constant returns to scale. This third assumption is needed so as to allow all the relevant

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[6] The concept called technical efficiency here has been referred to as managerial efficiency, productive efficiency or productivity in some other studies.

information to be condensed onto one (two-dimensional) diagram.[7] On the axes of Figure 6.2 are measured the inputs per unit of output (X_1/Q and X_2/Q). Assume that the SS' isoquant represents the technically efficient production function. Consider an input combination P. By virtue of the

Figure 6.2
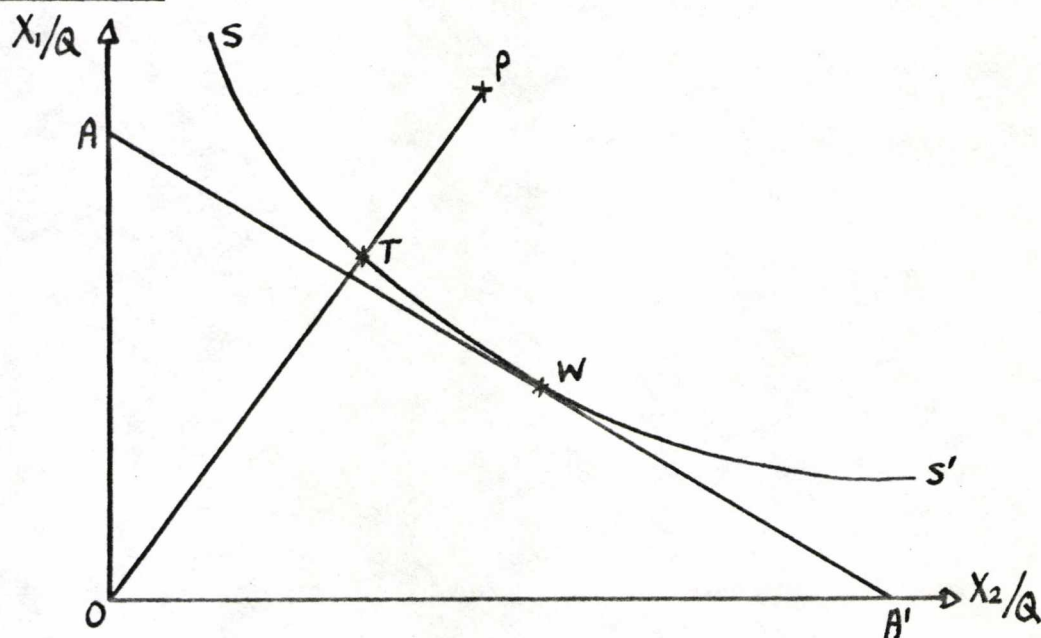
constant returns to scale assumption and the definition of the axes, the output at P is the same as on SS' and P is thus technically inefficient. The same _ratio_ of inputs could be used, but only to the extent of a fraction OT/OP of the amounts used at P, to produce the same output level. Point T is thus technically efficient, and of course any point along SS' is technically efficient. To examine price efficiency we must draw the input price line AA' (which assumes, of course, that relative prices are invariant with respect to input employment). A whole family of such price lines exists, each line parallel to AA' and each representing a different total cost. The point of tangency between SS' and AA', denoted W in the diagram, can then be seen to be price efficient as it is simply not possible to produce the given amount of output at lower cost without moving beyond the realms of feasibility (that is, moving outside - to the south-west of - the frontier production function SS'). The assumptions made in order to draw Figure 6.2 will not generally hold in practice, and

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[7] In fact, an assumption of homotheticity is sufficient (Clemhout, 1968). A production function F( ) is homothetic if for any two input vectors x_0 and x_1 in the domain of F such that $F(x_0) = F(x_1)$, then $F(hx_0) = F(hx_1)$, for any positive real number h.

there are also difficulties in defining just what is meant by the "efficient production function". These are discussed again below.

The final concept of efficiency distinguished here is <u>social efficiency</u>. Full social efficiency is achieved when net social benefits (social benefits less social costs) are maximised. By considering social benefits and costs we immediately concentrate attention on the full ramifications of the service under consideration (residential care). Social costs are defined in the normal way as the benefits that could have been derived from the consumed resources had they been employed in their next best alternative use (see below for further discussion). The social benefits, preferably measured in units commensurate with the units of social costs, should cover each and every observed effect of the service. One thus faces "a formulation of the efficiency test in which the unit to be costed is a true unit of output or achievement, and in which the measurement of costs ranges over all resources or inputs, and not just one 'key' one, nor even just those which have to be paid for out of the agency's own budget. The main conceptual blockage in the way of sensible and relevant efficiency analysis in the social services is the failure to realise this simple truth" (Williams & Anderson, 1975, p.5).

It will be noticed that there has been no mention of the non-resource inputs into care in this discussion of efficiency. The economist has tended to neglect these factors, or to classify them as "nuisance perturbations" on the underlying relationship linking resource inputs with outputs. The efficiency definitions described above interpret any unexplained differences in output (that is, after the "explanation" by the resource inputs) as reflecting inefficiency. However, two homes with identical resource inputs may produce quite different final outputs, the difference not being due to the efficiency of production but to the incidence and influence of the various non-resource characteristics beyond the control of the producer, such as resident characteristics at the point of entry. Because residents are not randomly assigned to homes, and because the incidence of other exogenous quasi-inputs will similarly be non-random, the omission of these omitted non-resource influences upon output will bias the estimated influences of the included resource factors and bias the efficiency measures.[8]

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[8] Linn et al (1977) suggest that output be measured relative to <u>expected</u> outcome in order to avoid these non-randomised admission effects.

This is a problem facing the application of economics in all areas of
social policy (and particularly the social services), and recent contributions
by Hanushek (1979) on education and Pauly (1978) on health are helpful in
this respect. In the education context, the most important non-resource
input has been skill differences among inputs to schooling, whilst in the
health context one important factor is patient casemix. Both of these
non-resource dimensions have, however, often been successfully included in
the modelling procedures of education and health economists, and similar
procedures will be adopted here.[9] The criticisms made by Glennerster (1975,
especially pp.168-170) of the economist's neglect of non-resource factors
are thus not entirely accurate but are fair when applied to quite a lot
of applied research on social services that has been undertaken under the
economics banner. It is thus necessary to supplement the conventional
economic definitions and measurements of efficiency with information on
non-resource factors, and this is attempted wherever possible in the
"efficiency analyses" that follow.

Efficiency, therefore, is a multidimensional and essentially relative
concept. To quote Førsund & Hjalmarsson (1974) again: "The performance of
an economic unit must be compared with a standard. Establishing a standard
involves value judgements about the objectives of economic activities.
The choice of specific efficiency measures depends on the purpose of
measuring" (ibid, p.141).

6.3. A Matrix of "Efficiency Analyses"

The conceptualisation of the inputs and outputs of residential care
is relatively easy when compared with their measurement in practice. A
number of measures for most inputs and outputs has been discussed in the
preceding chapter, and some will be encountered again below. On both the
input and the output side it is possible to move from the measurement to the
valuation of the components. For inputs there are at least two possible

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[9] For once, the pioneering research in this regard was undertaken in Britain,
albeit by an American economists. Feldstein (1967) included casemix
measures in his computations of the productivity, efficiency and costliness
of acute, non-teaching hospitals. The appraisal of his work by Lave &
Lave (1970) provides a useful account of the approach.

valuations. Firstly, one can collect information on what may be called the
accounting costs of the inputs, that is, the actual amounts expended to
secure the services of the staff or to erect or rent the home, and so on.
These are the expenditure figures that appear in the annual accounts of
homes, authorities and voluntary and private organisations. These accounting
costs are less useful than the second valuation, in terms of opportunity
costs. These measure the benefits that have to be foregone in the employ-
ment of inputs. Thus, for example, the opportunity cost to a woman caring
for an aged parent at home may be the income foregone by not working,
together with the "psychological costs" of strain. Money is generally used
as an index of opportunity cost "simply because price is a common
denominator in terms of which relative values can be assessed and understood"
(Doherty & Hicks, 1977, p.192). Opportunity costs are preferred to
accounting costs because the latter do not generally reflect the true
values that society places on the resources used in the production process.
Many of the inputs into residential care simply are not bought and sold on
the market and therefore would not appear on the budget sheet of the home
or authority, and for those resources which are bought on the market there is
no guarantee that the market prices reflect the social valuations. A
further classification of the costs of inputs is into private costs and
social costs, the former defined as those expenditures incurred by the
caring agency itself (such as the home or the local authority) and the
latter as those expenditures incurred by other groups (such as the aged
resident's family).

This gives us five levels of measurement for the inputs: in natural
units, private accounting costs, private opportunity costs, social
accounting costs and social opportunity costs. A sixth level of measurement -
no measurement - should also be included. Examples of these six levels
of measurement are provided in the chapters which follow and particularly
in chapter 11. Non-resource inputs are costless, in so far as they neither
have a market price nor an imputed social valuation and so they must be
appended to the costings wherever possible, probably through a multiple
regression or related procedure.

In order to compare and aggregate the (opportunity) costs of the
wide variety of inputs used in a care service we attempt to express all of
these costs in terms of a common numeraire. That numeraire is usually

money. Likewise, in order to compare and perhaps aggregate the multitude
of outputs that the services produce, and additionally to enable us to
compare them with the resources that have produced them, it has often
been suggested that social (monetary) valuations be placed on the outputs.
The difficulties of output valuation are tremendous and, many would argue,
insurmountable. The difficulties that have been encountered in the
valuation of the outputs and benefits of a rather more conventional and
tangible variety will be magnified many times over in the context of
residential care where the outputs are largely or often intangible,
multiple and subjective. This is not to deny that major inroads have
been made into this difficult area. Williams & Anderson (1975) describe
some of the principles of practical output measurement and valuation in
social services contexts in general, Culyer (1976), Doessel (1979),
Mushkin & Dunlop (1979) and Rosser & Kind (1978), among many others, have
discussed the problems of health status measurement, and Margolis (1977)
provides a good general review of valuation. Despite a certain amount of
guarded pessimism about output valuation, one should not be arguing against
the preference, in principle, for output valuation over output measurement.
This is a statement solely about research and planning preferences and not
about the feasibility and ethics of placing money values on the outputs
of residential care. We thus have five levels of measurement of outputs: no
measurement at all, intermediate output ("natural") units, intermediate
output values, final output ("natural") units, and final output values.

The six input measures and five output measures may now be cross-
classified, as in Figure 6.3, to form a simple two dimensional matrix.
Outputs are arranged along the horizontal axis and inputs on the vertical.
It should be clear from arguments in this and other sections that previously
conducted research (and commentaries) on residential care of the elderly have
varied markedly in their employment of input and output variables and
measures. The virtue of the matrix presented in Figure 6.3 is that all
of these studies fit into one, or occasionally more, of the 30 cells. The
matrix also has the virtue of summarising the various "efficiency analyses"
that have been suggested by economists, statisticians and policy-analysts
of all descriptions. It is not an aim of this chapter (or, indeed, this
thesis) to provide a review either of previously conducted research on
care of the elderly or of the modes of analysis available to the researcher

Figure 6.3

INPUTS	No Outputs	Intermediate Outputs Units	Intermediate Outputs Values	Final Outputs Units	Final Outputs Values
No Inputs	1	2	3	4	5
Units	6	7	8	9	10
Private Accounting Costs	11	12	13	14	15
Private Opportunity Costs	16	17	18	19	20
Social Accounting Costs	21	22	23	24	25
Social Opportunity Costs	26	27	28	29	30

or policy maker interested in the efficient use of available resources. However, some of the comments and descriptions made earlier can now be summarised with the aid of the matrix, and the analyses reported in the chapters which follow may also be compared in this way. For example, the "league tables" of local authorities much beloved of some commentators fall into cells 6 or 7 if they are talking of rates of provision, and cells 11 or 12 if they are comparing expenditure or cost figures. These figures may well be useful in some respects, but as indicators of efficiency they are of no value whatsoever, and may well be dangerous if used as the basis for policy. Similarly crude and of potential danger are policy recommendations based on examinations of outputs only, such as those sometimes made in social work research. In fairness, the compilers of the expenditure or rate of provision figures and the social work researchers do not generally make the (inadequate) policy statements themselves, but the danger is always there.

More interesting from the efficiency standpoint are some of the analyses conducted by economists and others. Cost function analyses are discussed and reported in chapter 7, and it will be seen that the data needed for these analyses place us in cells 12 or 14. In many respects the data needs of the cost function analyst are no greater than those of the "league table brigade", but the methods of analysis and interpretation make the results that much more interesting. Logically equivalent to the cost function, and more frequently examined in practice, is the production function. Some production function estimates for old people's homes are presented in chapter 8, where the data used fall into cell 8. Other production function analyses have used input units and output units (cell 7; for example, see Verry & Davies, 1975, on universities), or inputs

measured in cost terms and outputs in units (cell 12; for example, Lavers
& Whynes, 1978, on maternity hospitals), or cost-based inputs and outputs
measured as "value added" (cell 13 or 15, as in most production studies in
more conventional areas of economic research). The relatively recent
development of "frontier" estimation techniques for cost and production
functions has greatly increased the usefulness of these approaches in the
study of efficiency. Cell 7, or perhaps cell 12, is where we would find
the linear programming, operations research, systems analysis, or "Balance
of Care" approaches to policy assessment (see, for example, Fanshel, 1975;
Jackson & Himatsingani, 1973; Mooney, 1978).[10] Planning, Programming
and Budgeting Systems (PPBS) or Programme Budgeting has been used by DHSS,
and this type of research, which is inadequate as a means of gauging
efficiency, would fall within either cell 12 or 11, depending on the usefulness
of the "output" measure. Certainly no final output measures have been
used, and often no output measures at all. The PPBS approach is discussed
by Banks (1979), Hurst (1977, pp.228-232) and Glennerster (1975, pp.168-170).
Two other techniques should be mentioned in this brief introduction to
efficiency analysis. Cost-effectiveness analyses fall within cells 27
and 29, if properly conducted, and cells 17 and 19 if only agency
(private) opportunity costs are included. Doherty & Hicks (1975, 1977)
provide a good account of cost-effectiveness techniques applied to day care
services and health programmes, respectively, for the elderly in America.
Doherty, Segal & Hicks (1978) review recent literature on the viability
and cost-effectiveness of alternatives to institutionalisation for the
aged. Cost-benefit analyses differ from cost-effectiveness analyses in
that they place (monetary) valuations on the outputs, and would thus
appear in cells 28 or 30, if properly undertaken, or cells 18 or 20 if
only agency costs are computed. There have been no fully valid cost-benefit
studies for services for the elderly, the major difficulty being the valuation
of the outputs. The research studies by Wager (1972) of services for the
elderly, and Schofield (1976) of preventive social work with families, both

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[10] See, however, Expenditure Committee (1971-72, especially question 17),
Knapp (1980), Mooney (1980). Note that the apparently similar recommend-
ations of Pollak (1976, p.138) and Sager (1979, p.252) to those of Mooney
(1978) would appear to be mistaken because of their use of average rather
than marginal costs.

appeared under the cost-benefit banner but are nothing of the sort. In chapter 11, cost-benefit and cost-effectiveness analyses are described and reviewed and it will be seen that these two studies fall a very long way short of their advertised approaches.

Now, the discussion in the opening chapters of this thesis emphasised the importance of obtaining final rather than merely intermediate indicators of output for residential care services for the elderly. It is also valuable to be able to value these final outputs in order to render them comparable with the inputs, which are expressed in cost terms as a convenient common numeraire. Given a free choice, therefore, we should prefer to have information on the values of the final outputs to (say) the units of intermediate output. We would thus prefer to move from left to right in figure 6.3. Similarly, on the input side, we would prefer to be able to measure inputs in terms of their social opportunity costs than in any other way. Social opportunity costs have the dual virtues of covering all the inputs into care (because they are social) and of representing the true values of the inputs (because they are opportunity costs).[11] We would thus prefer, given a free choice, to move down from the top to the bottom of figure 6.3. Combining these desired directions of movement takes us towards the bottom right hand corner of figure 6.3, and particularly to cell 30. Given the full social opportunity costs of the inputs, and final outputs valued in similar monetary units, we are then able to comment upon the social efficiency of the service(s) under consideration. An ideal technique for such an investigation of social efficiency is cost-benefit analysis, and the methodologies of such a technique, when applied to a comparison of residential with domiciliary care for the elderly are examined in some detail in chapter 11.

The chapters which follow examine efficiency in care from a number of different perspectives. Most of the examinations make some use of empirical information, others discuss the principles of research. The principal aims are to describe and assess the usefulness of some of the modes of efficiency analysis briefly introduced above, and, where available data allow it, to illustrate the techniques with actual estimation.

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[11] The unconvinced reader is referred to Pollak (1976, pp.128-130), Williams (1978, pp.86-88) or any relevant economics textbook for elucidation.

Chapter 7   COST FUNCTIONS FOR OLD PEOPLE'S HOMES

7.1 Introduction

Increasing concern has been voiced in recent years about the costs
of care for the elderly, and about the costs of residential care in
comparison to the costs of other services. This concern in part stems from
the experiences of recession and the cutbacks in public expenditure, which
have heightened the cost-consciousness of public, voluntary and private
providers alike, as we noted in chapter 1. It also stems from a realisation
that the proportion of elderly people in the population, and the proportion
of the elderly that are frail and dependent, is increasing at a fast rate
and will continue to do so for some long time. In the terminology of
section 2.2.6, organisational concerns about the elderly are dominating
humanitarian concerns. Both of these general attitudes towards the elderly
have already been discussed. The third source of concern about the costs
of care comes from a realisation that these costs vary greatly between and
within local authority areas.[1]

Previous examinations of residential care costs, and variations therein,
have, with few exceptions, relied entirely on bare comparisons of available
cost figures. Such bare comparisons provide a useful introduction but when
used as the basis for policy are liable to mislead by their simplicity and
to cause policy makers to make quite inappropriate decisions. Many such
comparisons do not even bother to use the most basic of output indicators,
let alone qualify the cost figures with reference to the host of other
factors liable to be influential. If costs in home A are twice those in
home B does this mean that home A is being wasteful or providing better
quality care? Is the observed variation in costs due to "good housekeeping,
the Oliver Twist mentality, or the three or four star hotel mentality?"

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[1] That costs vary between local authorities, and between homes within an
authority, has long been known. Rowntree (1947, Appendix 5) reported that
cost per resident wekk in 1943-4 ranged from 25 shillings in Queensbury
House, Edinburgh, to nearly £3 in Crookston Home, Glasgow. A similar
degree of variation was reported by the Phillips Committee in 1954
(Cmd 9333) and by many other studies since then (e.g., see Thomas et al,
1979, chapter 7, for operating costs and   for capital costs; see
also the empirical studies in the text below). The statistics published
annually by CIPFA illustrate the extent of the variation between local
authorities.

(Sumner & Smith, 1969, p.63). In this chapter cost function analysis (or statistical cost analysis) is employed in an attempt to explain these variations. Cost function analysis has many other policy uses, and these will be discussed in section 7.3. Cost functions, however, are not widely known, nor is their potential appreciated,[2] and so section 7.2 describes the cost function approach. Section 7.3 examines both the advantages and the difficulties of using the technique as a policy tool, and in the final section are presented some examples of cost function estimation. The comparative costs of residential and other care services are not discussed until chapter 11.

Section 7.2   Cost Functions in Principle

There are a number of different approaches to the explanation of variations in the cost of production. In mainstream applied economics the three most popular techniques are the so-called engineering, 'survivor', and statistical cost analysis approaches. The engineering approach may be appropriate in studying manufacturing processes (cf., Pratten, 1971; Silbertson, 1972) and the survivor technique may be useful in competitive industries (although it has a number of limitations, see Shepherd, 1967) but neither is of value in social services contexts. Attention is therefore focused on statistical cost analysis throughout, the aim of which is the estimation of a cost function.

7.2.1   The Derivation of the Cost Function   The cost function is the empirical representation of the relationship between the cost of production on the one hand and on the other, the level of output, the prices of inputs, the "state of technology", and such other factors as the "mix" of output, the

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[2] The reader already familiar with cost function analysis will find the following statement by Thomas et al (1979, paragraph 7.48) of interest: "In order to be able to make conclusive statements about comparative building costs for group homes we feel it would have been necessary to find group and non-group homes of identical size, on similar sites within the same authority and built at the same time. Such samples do not exist." These authors examined a number of possible "causes" of cost variation, in every case by selecting pairs of similar homes. It will be seen that the cost function technique removes the need for such pairwise comparisons, allows very much more powerful comparisons without any loss of either accuracy or generality, and provides much more stringent tests of the various hypotheses.

rate of production and the idiosyncracies of individual producing units.
The form of the relationship is predominantly empirically determined
generally through the application of multiple regression to a time series
or cross-section of observations. Under various assumptions (examined
later) the estimated cost function traces out the (stochastic) locus of
points which indicate the minimum cost of production at each level of output.
Given the level of output, the input prices, state of technology, and so
on, the function gives the "expected" cost of production, that is, the
average level of either average or total cost given these particular levels
of the cost-determining factors. To the best of my knowledge, there have
been no previous cost function studies for British personal social services,[3]
although some American studies of child care have used this approach, and
there have been numerous applications of the technique in research on
health and education.

The cost function was first examined by Hotelling (1932) but the cost
curve was discussed very much earlier, and certainly pre-dates the production
function which is its rather more popular mathematical dual. The cost
function should be distinguished from the cost equation, the former being
a causal relationship and the latter simply a tautological accounting
identity. If we denote the inputs into care by X_1, X_2, ..., X_n, and their
prices by P_1, P_2, ..., P_n, then the cost equation is simply

$$TC = P_1 X_1 + P_2 X_2 + \ldots + P_n X_n,$$

where TC denotes total cost. The cost function, on the other hand, is
written as

$$TC = f(Q,p,Z),$$

where Q denotes output(s), p denotes input prices, Z is the generic term for
all other influences (potential or actual) upon cost, and f indicates
some functional form. It should be noted that input levels do not enter
the cost function and it is the erroneous inclusion of (say) staff numbers
which has rendered invalid some earlier studies of the cost relationship.[4]

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[3] Some studies have examined the relationship between cost and output (or,
usually, scale), but not in a cost function framework; that is, their
results (often obtained from simple cross-classifications or "back-of-
envelope" scratchings) are not sufficiently reliable to be used for policy
purposes. The unpublished study of care of the mentally ill and handicapped
by Casmas (1976) included some cost function-type analysis.

[4] Cost equations may be preferred to functions when studying the inflation of
costs over time (see, for example, Feldstein, 1971; DHSS, 1978b).

The omission of input levels follows immediately from the derivation of the cost function from the two basic system equations (the production function and cost equation) and the assumption regarding productive behaviour (generally cost minimisation).[5] It has sometimes been suggested that <u>certain</u> input characteristics be included in the cost function. For example, design characteristics of homes can validly be included in operating cost functions (see section 7.4), and Pauly (1978) included some medical staff characteristics in his cost function for Californian hospitals because of data limitations, problems of measurement, and the implausibility of the cost minimisation assumption in that particular context. Cost minimisation is held to be a reasonable approximation to productive behaviour in the samples studied here (see below). Cost functions, as noted above, are the mathematical duals of production functions and therefore, in principle at least, the two modes of analysis should produce equivalent results. Rarely has this duality been exploited in empirical work (exceptions are the studies by Nerlove, 1963; Binswanger, 1974; Førsund & Jansen, 1977), and the problems of estimation will generally mean that the two approaches yield slightly different results. Binswanger gives a number of reasons for preferring a cost function to a production function, but generally the preference must be context-specific, and should be determined by whether output is endogenous (production function) or exogenous (cost function). The data available to me sometimes allowed cost function estimation (as reported in this chapter) and sometimes production function estimation (as in chapter 8), but there was no opportunity to exploit the duality properties here.

7.2.2   <u>Factors Influencing the Cost of Residential Care</u>   The cost function expresses total or average cost of care as a function of output, input prices, and certain other factors. In this section these influential factors are described in more detail. Not all of the factors discussed below will necessarily enter a cost function, for the reasons given below, but they are included here because they have sometimes been used in estimation (either erroneously or because the context demanded it) and/or because

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[5] This derivation is illustrated in most intermediate (applied) economics or econometrics texts (e.g. see Wallis, 1973; Henderson & Quandt, 1971). McFadden (1978) provides an excellent historical and theoretical review of cost functions.

they have some bearing on data preparation and policy recommendations. The factors discussed here are either related to the definition or measurement of cost itself, to outputs, to input prices, or to aspects of resource or non-resource inputs not covered by the costs data.

(a) Input prices. Clearly, the amount a local authority must pay for the resource inputs employed will influence the costs of care. The price paid for an input will often not be independent of the rate of employment, simply because inputs are not in perfectly elastic supply,[6] and thus the level of output. Prices will also be related to input qualities, and thus to such factors as staff experience and training, and this has encouraged the use of "purpose-built" price indices (Feldstein, 1971, chapter 5; Jackson, 1975, chapter 5). Input price variations induce cost variations in a fairly straightforward way, but their importance is hard to gauge. Certainly, inter-temporal studies of cost have found prices to be important. A DHSS (1978b) study reports that the gross unit costs of old people's homes rose by 29% between 1970-71 and 1975-76, and that 25% of this increase could be accounted for by increases in salaries and wages. The costs of labour-intensive services have tended to rise faster than other services and goods and will continue to do so, through this relative price effect. In cross-section research, the importance of price variations may be rather less. Staff costs account for approximately 75% of the operating costs of old people's homes, and the adoption of national (or regional) pay scales, by local authority employers at least, may therefore mean little wage-induced cost variation. Certainly, in the analyses reported in section 7.4, the absence of price data, whilst regrettable, was not a cause for undue concern because the samples of homes were all local authority owned and, in two cases, located within just one authority. Davies (1968, p.43) found little price variation between authorities, but today we would expect to observe non-pecuniary (and surreptitious pecuniary) competition to alter the real price of staff.

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[6] In fact, theoretically speaking, the cost-output relationship should be drawn on the assumption of perfect elasticity; introducing the reality of inelasticity means that some economies of scale (see (b) below) are really economies of substitution. Cheaper inputs will be substituted for more expensive ones.

Shortages of suitably qualified or motivated staff generate competition among social care employers, either through internal or external labour markets, which results in offers of non-pecuniary advantages (such as accommodation and less disruptive hours) and of more paid overtime, by employing inferior staff and/or regrading posts, and so on. These practices may not show up in the accounts of the home or authority, and may not induce cost variations, but they will have an impact on caring practices and "welfare production processes", and hence upon final output. High staff turnover rates are another likely consequence (see chapter 10).

(b) Outputs. As output increases so the total costs of a productive enterprise will increase, and there is no reason to suggest that old people's homes will be any different. What is more interesting is the behaviour of average cost or marginal cost as the output level varies.[7] Textbook discussions favour a U-shaped average cost curve, with economies of scale up to the cost-minimising level of output and diseconomies thereafter. Much empirical research in the conventional areas of industrial economics has, however, suggested an L-shaped curve, with economies of scale followed by constant returns to scale. Marginal costs vary accordingly. Previous research on old people's homes has been impressionistic rather than rigorous and has not been conclusive on this score. This research is considered below, after a brief review of the sources of economies and diseconomies of scale. Before doing so it is important to distinguish a number of output concepts. The distinction between final and intermediate outputs has been made already and we would clearly prefer to include the former in the cost function wherever possible.[8] Complications may arise with the

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[7] Letting Q denote output and TC denote total cost, we define average cost (AC) as TC/Q and marginal cost (MC) as the derivative dTC/dQ. The shape of the total cost curve uniquely determines the shapes of the AC and MC curves.

[8] Some economists have argued against a final output conceptualisation (e.g. Mann & Yett, 1968; Yett, 1970; Mooney, 1980). However, in its stead they sometimes suggest including both the quantity and quality of output. In the social care (or health care) context, however, the quality of output simply cannot be divorced from the impact of services upon clients' well-being, and thus from final outputs. Indeed, output quality measures in this area are no more nor less than crude final output indicators. What is more, they are only rather poor final output indicators. The arguments of these economists are therefore rejected.

use of final outputs, for they are produced by both resource inputs, which are costly, and non-resource inputs, which are not. However, there is a limit to the productivity of the non-resource factors without the input of further resource factors, and so for even the most intangible of final outputs it seems reasonable to posit a cost-output relationship. In practical circumstances, intermediate outputs will be more readily available than final outputs, and the discussions and arguments of this chapter assume this to be the case. This influences the content but not the tenor of the argument. A second distinction to make is between the volume of output and its rate of production. This distinction has a more intuitive appeal in, say, manufacturing contexts than in social care contexts, but it has been used in some health economics research and will be discussed here. In this section it is the volume of output which is of concern; section (c) discusses the rate of production. A related distinction is between anticipated and realised levels of output and this too is discussed in (c) below.

The sources of economies and diseconomies of scale are well described in the economics literature (with good summaries by Johnston, 1960, chapter 2; Silbertson, 1972; George & Shorey, 1979, pp.133-9) and are only briefly discussed here.[9] In residential care, economies of scale may arise from the use of fixed or indivisible resources, such as the building; from the fact that variable inputs increase less than proportionately with outputs (particularly the case with overhead administrative and supervisory staff); from the specialisation of inputs, increasingly important with increasing dependency and the need for stimulation; from the bulk-buying of some inputs;[10] and from the fact that larger scale allows

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[9] The sources of economies listed here overlap to some extent, but should comprehensively cover all the important factors.

[10] This has been called a "pecuniary externality" rather than a scale economy since bulk-buying reduces costs only indirectly through reduced prices (Cowing & Holtmann, 1976, p.66). Some of these economies or externalities only benefit the "bulk-buyer" at the expense of others and are thus only privately but not socially beneficial. Bulk-buying and standardisation was recommended in Cmnd 1973 (para.157) but can have deleterious consequences (Bacon, 1979; and see Social Work Today, 4.4.78, p.5).

a higher percentage occupancy of available places (Berry, 1967, and (c) below). On the other hand, diseconomies of scale may set in beyond a certain (optimal) level of output. Among the reasons usually cited are: the burden of management becomes too much and inefficiencies arise in the use of non-managerial inputs; the supply price of scarce resources will rise with increases in demand (as with qualified social workers); the fixed or indivisible inputs are over-used; and staff motivation may decline with scale (giving rise to X-efficiency).

The relationship between average operating cost and intermediate output is examined empirically in section 7.4 through the estimation of cost functions. Previous comments about economies or diseconomies of scale in the operation or construction of old people's homes have not been based on so reliable a technique. Rowntree (1947, p.75) and Townsend (1962, p. 124) felt that small homes were not more expensive to run than medium-sized or large homes, although the basis for their conclusions about the absence of economies is not clear".[11] Other researchers, all of whom have cited quantitative evidence to support their conclusions, have argued that small homes have significantly higher average costs. Shenfield (1957, p.158) felt that having between 30 and 35 residents in voluntary homes was "a more economical number", and the NOPWC (1954) study found that cost per resident week could be as much as 6 shillings higher where there were 20 residents than where there were 30. Two recent studies have demonstrated the existence of economies of scale in running old people's homes (Wager, 1972; Thomas et al, 1979) although for neither study was this the principal focus of attention. Re-analysis of their respective data sets, however, allows us to draw further conclusions. Re-estimation of Wager's cost function, adding back in the three homes considered by Wager to be "too large" for inclusion, revealed that a U-shaped average cost function fitted the data much better than Wager's simple monotonically decreasing linear function. The data collected and reported by Thomas et al is reanalysed and the results discussed in section 7.4.4. Pollak (1976) posits a U-shaped cost curve for care services for the elderly in the USA.

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[11] Rowntree, for example, wrote: "Experience has shown that quite small Homes can be run at costs not appreciably higher per resident than those of well-conducted large Institutions" (p.75). However, plotting approximate cost per head per week against the average number of residents, using his data tabulated on p.144, reveals that small homes are appreciably more expensive.

(c) _Activity_. As well as the volume of output, the rate of its production has also been argued to influence costs (Alchian, 1959; see also Mann & Yett, 1968). For a given volume of output, a faster rate of production will raise average cost. In the present area, the volume of output could be measured at an intermediate level as the number of available places or the number of residents, and the rate of output would mean the utilisation of available capacity and could be measured by the occupancy, admission or turnover rates, or the average length of stay (see section 3.6.4 above).[12] The influences of these rate or activity variables are fairly easy to specify _a priori_. There are costs associated with receiving a resident into care, particularly because more staff resources are required to help the resident through this difficult adjustment phase and because of the administrative tasks to be accomplished. Admission (and turnover) rates are thus likely to exert a positive influence on costs. The argument for examining the occupancy rate is that there are many costly resources, principally staff resources, which are geared to a particular level of operation and which cannot easily be adjusted to short term changes in occupancy. If a home is temporarily under-occupied, having more spare places than usual, then, _ceteris paribus_, we would expect average cost per resident to be higher than usual.[13] This lagged response to temporary deviations from least-cost output may bias empirical results if corrective action is not taken. This "regression fallacy" bias has been widely discussed before and is considered again in section 7.3.2. The expected negative association between occupancy and average cost per resident has been verified in previous research in a number of closely related areas (Centre for Inter-firm Comparison, 1975; DHSS, 1975; Hatch & Mocroft, 1979; Knapp, 1977b; Knapp, Curtis & Giziakis, 1979; Thomas et al, 1979) and is examined again below. The average length of stay of residents may also be related to costs, although there does not appear to have been any empirical research

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[12] The volume of output is a "stock" concept, and the rate of production a "flow" concept.

[13] Average cost per _place_ would be lower than usual by virtue of the definition of occupancy as (no. of residents) ÷ (no. of places); or, equivalently, because there are lower variable costs to allocate between the fixed number of places.

on this association.

(d) Aspects of care. Final outputs are of paramount importance in the explanation of cost variations, but are difficult and expensive to measure. Without the facilities afforded by a fairly generous research grant an (inferior) alternative to final output measures are indicators of certain aspects of care (sometimes called "technology") because of their hypothesised or proven association with final output. Staff and design characteristics will be possible surrogate indicators, although these are discussed separately below, and our production of welfare perspective would additionally suggest that aspects of social environment, caring services and resident characteristics might be useful. Resource correlates of final output will generally have a non-zero market price, and their inclusion in the cost function may give rise to difficulties of inter-pretation because of the consequent similarity between the fitted relationship and the (tautological) cost-equation. No such problems arise with the (costless) non-resource inputs.[14] Resident characteristics have been found to be significantly associated with costs on a great number of occasions and are discussed separately in (e) below. Townsend (1962) found that variation in expenditure was correlated with variation in the non-material standards of homes (see Davies, 1968, p.137) although the causality (if any) was not at all clear. Moos & Lemke (1980), on the other hand, found no association between the cost measure (actually based on charges) and the provision of social recreational, prosthetic and orientational aids, or safety features in their study of sheltered care settings for the elderly in California. The provision of safety features to reduce the risk of accident or fire will however raise capital costs (Baines, 1977; PSSC, 1975, para.60; Thomas et al, 1979). The provision of day care and meals services by old people's homes will also raise costs but there are interesting questions about economies of joint supply

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[14] In fact, non-resource inputs may enter the cost function in their own right, whether or not final outputs are included. Given a production function of the form suggested by the theoretical production of welfare model, final outputs are causally determined by resource and non-resource inputs. Adding a cost equation and an assumption such as cost minimisation would give a cost function with cost causally determined by output, input prices and non-resource inputs (see, for example, Pauly, 1978).

care and attention their costs are likely to rise" (Shenfield, 1957, p. 164). The NCCOP & Age Concern (1977) report criticised voluntary organisations for adopting such policies.

(f) Design characteristics. Some aspects of home design, and the capital stock generally, will have implications for staffing, for energy resources, and thus for cost. Furthermore, many of these influences will not be picked up by other factors listed here. The capital (principally construction) cost implications of design are not discussed here, but there has recently been a considerable amount of discussion of the so-called "revenue consequences of the capital programme", which in our terminology and with our orientation means the "operating cost consequences of design".[16] Cmnd 5519 explained the concept: "Capital expenditure normally entails increased revenue expenditure, either to meet the running costs of additional facilities (for example, new homes or extensions to existing premises) or the extra cost of providing a better service for the same number of people in modernised accommodation. It is estimated that the amount of the additional revenue expenditure thus generated each year is about a fifth of the capital investment" (ibid, p.100). The revenue consequences have in fact increased as a proportion of total expenditure since 1970 (Cmnd 6396; Judge, 1978, p.87), but are not always appreciated by local authority committees (DHSS, 1973c, p.22). Many old people's homes consequently stand empty because authorities cannot afford to run them (Expenditure Committee, 1974, paragraph 252; McCreadie, 1975, pp.72-3; Booth, 1978). One of the empirical examples reported below examines the design implications for operating costs, and related implications are examined in chapter 9.

(g) Staff characteristics. Cost variations between homes generated by differences in staff characteristics may be partly or wholly explained by reference to the other cost-influencing factors discussed in this section. Alternatively, staff characteristics may be included in the place of these other factors if data for the latter are not available, or if the measurement of these variables is contentious, or if the cost

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[16] This is, of course, a much narrower interpretation of the term than is generally made.

minimisation assumption is not thought to hold true. Pauly (1978) provides
a good discussion of these reasons and uses staff characteristics in
his own cost function estimates.

(h) Location. A brief glance at the annual CIPFA publications of
personal social services statistics reveals marked variation in the
average cost of residential care between local authorities. This
variation is important not only because it needs explanation but also
because it shapes the annual Rate Support Grant settlements and so on.
The reasons for variation in costs between areas are numerous but are
mainly or entirely covered by the other factors discussed here. For
example, old people's homes in London tend on average to be larger than
elsewhere so that cost variations possibly attributable to location
might really be due to economies or diseconomies of scale. Of more
importance are the higher salaries that London authorities must pay to
attract and retain staff. At the local authority level there are probably
four location effects which should be distinguished and which may or may
not be adequately covered by other factors; these are organisational
factors reflecting differences in the role of residential homes in the
social care system, ecological factors reflecting differences in the
characteristics of areas which partially determine needs and demands,
pecuniary factors reflecting input price differences, and miscellaneous,
historical and idiosyncratic factors (Knapp & Missiakoulis, 1980;
Bebbington & Davies, 1980a). Moving from local authorities to individual
homes the major location effect is the urban-rural difference in cost.
Homes located in rural or sparsely populated areas are felt to be cheaper
to build and possibly to run (DHSS, 1975, paragraph 2.7; Pauly, 1978)
although once again this influence on cost may be better captured through
the inclusion of other factors. Moos & Lemke (1980) found that "cost"
and community accessibility were not correlated.

(i) Ownership. It is often claimed, and apparently supported with
figures, that voluntary homes are cheaper to run than local authority
homes. In many instances it is claimed that it is cheaper for a local
authority to maintain a resident in a voluntary home than to provide a
place in a statutory home (e.g., see PSSC, 1977, paragraph 2.42; Davies &
Knapp, 1981, section 7.3). There is undoubtedly an element of truth in

this, but the difference is much less clear cut than some commentaries
would have one believe. It is argued that voluntary homes have a number
of advantages over local authority homes which account for this cost
difference. "Lacking voluntary help their /local authority homes'7
staff and administrative costs may be higher and certain amenities like
tobacco, newspapers, etc., are included in their charges. They are also
more often involved in the provision of clothing for their residents
who may have fewer personal resources than the old people entering some
of the voluntary homes" (Shenfield, 1957, p.159). Voluntary homes are
also more likely to allow residents to bring items of their own furniture
into the home, which reduces average cost slightly as well as providing
some continuity for residents. Hatch & Mocroft (1979) compare the costs
of voluntary and statutory providers of a number of services, concluding
that "the main factor seems to be the greater commitment that a voluntary
organisation can in some circumstances elicit from its staff, and their
consequent willingness to work harder and/or for less money than the
equivalent staff in a statutory organisation" (ibid, p.404). However,
voluntary organisations generally suffer shortages of money which often
means the employment of willing but not necessarily competent care
staff and poor standards of repair (DHSS, 1975; NCCOP & Age Concern,
1977; Townsend, 1962, p.175). What is not clear from this evidence
is that voluntary organisations are providing equivalent standards of
care, face similar configurations of the exogenous non-resource inputs
(and particularly resident characteristics) and achieve equivalent final
output levels.[17] Any comparison of voluntary and statutory provision
should ideally be standardising for these factors before drawing conclusions
about relative costliness (cf. Ruchlin & Leveson, 1977, table 6).
A cost function framework should be ideal for examining this hypothesis.
Ownership may therefore be a valid variable to include in the function.

(j) Charges. Charges are included here for but one reason - costs
of residential care are sometimes expressed in net rather than the preferred
gross form. In real terms, net costs of residential care for the elderly

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[17] Townsend found that voluntary homes were providing better quality care
than local authority homes in 1958-59 (Townsend, 1962, tables 35 & 36).

have risen faster than gross costs in the last ten years. A recent DHSS study found that the real (constant price) increases over the period 1970-71 to 1975-76 were 60% and 40% respectively. This was possibly due in part to local authorities not raising the maximum charge from residents and from the increasing difficulties experienced by residents in paying these charges (DHSS, 1978b, paragraph 3). These and other reasons should not delay us here for they do not form part of the central argument. The net costs of care will clearly vary with the charging policies adopted by homes or authorities and any study reliant on net costs (such as that reported in section 7.4.4 below) should be treated with more caution than usual.

(k) Efficiency. It is obvious from the definition of price efficiency in chapter 6 that an inefficient producer will incur greater costs in the production of a given level of output. Thus average cost and administrative and productive efficiency will be directly related, and efficiency may well be one of the most important determinants of cost. In empirical work, however, there is little that one can do but assume that "unexplained" cost variations, having taken account of all the above-mentioned factors, represent inefficiencies or efficiencies. These are discussed again later in the chapter.

7.3 The Uses and Difficulties of Cost Function Estimation[18]

7.3.1 Policy Uses Estimated cost functions have a number of policy uses, some of which will be illustrated by the empirical research reported in section 7.4. In this section a fairly comprehensive listing of policy uses is presented. The next subsection examines the difficulties with and criticisms of cost function estimation.

(a) Cost functions ensure that costs are viewed in their proper context; that is, all extraneous and exogenous influences upon the cost of providing the service are taken into account before other policy implications (such as those listed below) are examined. It is

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[18] The uses and abuses of cost function analysis are discussed in more detail by, for example, Dean (1976), Johnston (1960), Verry & Davies (1975). Space does not allow a full discussion of these topics.

meaningless to talk of <u>the</u> cost of care without regard to the factors
associated with it or predictive of it. All policies are based on at least
some information from or about the past, "so, disentangling the causal
influences in history is a useful exercise" (Hurst, 1979, p.70).

(b) An immediate corollary of the first point is that the cost function
allows the quantification of the influence of output upon cost, and thus
the examination of the presence or otherwise of <u>economies and diseconomies</u>
<u>of scale</u>. This allows the avoidance of reliance upon "experience"
which sometimes appears to conflict with evidence (see footnote 11 above).
Important economies or diseconomies of scale have extensive implications
for planning the number and location of homes, as successive Building
Notes and other design and planning recommendations make plain. Exploit-
ation of economies allows the same provision of residential services at
lower cost, or greater provision at the same cost, and may represent
an important social gain.[19]

(c) The cost function further allows the examination and quantification
of the influence of all <u>other determinants of cost</u> discussed in section
7.2.2. Thus the cost implications of more dependent residents can be
identified, the effects of prices and occupancy rates can be assessed
and so on. If budgets are to be allocated efficiently and equitably it is
important that these effects be quantified and that this is done when
all likely influences are included simultaneously. Only a cost function
estimated by multiple regression techniques can accomplish this satis-
factorily. It is clearly important to examine all influences on cost
at the same time to avoid placing undue emphasis on any one factor
(and see (h) below).

(d) The cost function is the only feasible and reliable technique
available for allocating <u>joint costs</u> between two or more outputs or
activities. Multiple outputs, which are the norm rather than the exception
in the personal social services, can all be included together in a
single function, and average and marginal cost expressions obtained for

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[19] Notice that economies have implications for optimal level of production
by each producing unit (cost-efficiency) but that this is distinct from
the optimal level of provision by society (social efficiency). The former
is related to the shape of the cost curve, the latter to the point of
intersection of the marginal cost and marginal benefit (valuation) curves.

each of them. These expressions, obtained from the empirically-determined weights, reflect the average allocation of joint costs over all homes. Feldstein's (1967) study remains an exemplar in this area, and has been copied many times over (cf. Culyer et al, 1978). An interesting topical illustration of the need to allocate joint cost is provided by the question as to whether day care is cheaper when provided jointly with residential care than when provided independently.

(e) The efficiency of individual homes can be examined with the help of an estimated cost function. Having taken account of resident characteristics, input prices, outputs, and so on, the residual variation in the cost of care gives a preliminary indication (at least) of the efficiency of production. These residuals show the performance of a home relative to other homes similar with respect to the causal influences included in the cost function. (This relative comparison is a multi-dimensional one, in contrast to the pairwise comparisons used by, for example, Thomas et al (1979). To a limited extent these residuals measure the relative price or cost efficiency or costliness of homes. However, residuals also include the influences of omitted variables and if, as in the examples below, only intermediate outputs are available then deviations from the "average" relationship (as indicated by the estimated regression equation) will have an ambiguous interpretation. A positive residual could indicate inefficiency (the home spends above the average to provide a given amount of care) or high quality care (and hence higher costs). See also 7.3.2(d) below.

(f) Cost functions estimated from cross-section data may be useful for examining inter-temporal cost differences and rates of cost inflation. Although the cost equation is sometimes preferred when working in the time domain (cf, Feldstein, 1971), a cross-section cost function coupled with a limited amount of inter-temporal information can be enlightening (see section 7.4.2 below).

(g) From an estimated average or total cost function, the marginal cost curve may be obtained. Marginal cost curves are rarely, if ever, observable without functional estimation and are crucially important for the determination of socially efficient levels of production and allocation of services, and for determining price efficiency. Of course, marginal

cost information for the whole range of output may not be needed, but there is still the problem of obtaining the necessary information around the likely socially efficient point. Average cost data is simply not sufficient for the efficient planning of social care (see, for example, Culyer, 1976, p.110; Mooney, 1978; Rickard, 1976, pp.244-5; Williams & Anderson, 1975, p.89).

(h) Cost functions are also useful when examining the relative advantages of alternative strategies of care, including variations in packages of services and choices between statutory, voluntary and private providers. There are so many different services for the elderly, many of which will be either complementary or substitutable for most clients of social services departments, that efficient planning requires careful comparison. Bald comparisons of bare cost figures, that is without qualification or (preferably) standardisation for all the relevant influential factors, can be dangerous and lead to quite meaningless conclusions. Standardisation for all or most influential factors will not always be easy (but is being undertaken in the project reported by Challis & Davies, 1980) but should be attempted. Because bare figures have not been standardised for these influential factors, or because standardisation has not really been adequate, the conclusions and recommendations of a number of recent studies should be treated with some caution. For example, Armitage (1979), Davies & Duncan (1974), Mooney (1978), Shenfield (1957) and Wager (1972) hardly adjust the bare cost figures at all even though each of their studies is of some considerable interest and importance. Hatch & Mocroft (1979) and Rickard (1978) conduct some adjustment before making comparisons, and Paige & Jones (1966, pp.103-4) actually refused to make bare comparisons because the figures could be so misleading.

(i) Finally, if a socially efficient pricing or charging policy is required, the estimated average and marginal cost schedules will be important for the necessary calculations, although there would probably be more important considerations, such as equity or demand regulation, to shape the charging structure.

7.3.2   Difficulties and Criticisms

(a) In view of the discussion in chapter 6, cost functions can be criticised for their measurement of cost. Four criticisms have been made: opportunity costs are not used, the time referant of cost is rarely made explicit, capital costs are often excluded or inappropriately measured, and overhead costs are omitted. These criticisms have been levelled at empirical work; in principle, there is nothing inherent in the cost function approach which precludes the proper measurement of cost. If accounting and opportunity costs differ, there will only be a distortion of the estimated cost function away from the true relationship if the size and direction of this measurement error is pervasively related to the included causal factors. This is the standard measurement error problem. The second criticism is that costs are collected annually by the accountant but that this time period of one year corresponds to neither the short run nor the long run of economic theory. This is a real but not necessarily serious problem, and one that is easily rectified with more regularly collected cost figures. Excluding capital costs, or modelling them separately from operating costs, will distort the estimated function if capital and other inputs are substitutable (as chapter 9 below suggests they are). On the other hand, using the capital cost figures supplied by the accountant will represent little improvement because of the biases towards a linear relationship that will follow if "straight-line" depreciation procedures have been used. Finally, overhead costs are rarely included, and are very difficult to include. The importance of omitting overhead costs will depend on the policy context; if overheads are roughly equivalent for two services which are being compared, it may make little difference if they are omitted. It is important to notice with regard to these four criticisms that no other study of the costs of services for the elderly is immune from them or has adequately taken account of them. This does not constitute a defence of cost function analysis but it does add a note of qualification to the criticisms.

(b) Many empirical studies have omitted potentially important determinants of cost, either because the data has been unavailable or because the researcher has exercised insufficient ingenuity and imagination. If the omitted factors are correlated with the included factors then the

estimated regression coefficients will be biased downwards (their true influences are "dampened down" or understated). The regression residuals will also be larger and may complicate the measurement of efficiency. A special case of this omitted variable problem concerns the lack of data on final outputs. Economies of scale as indicated by the regression of average cost on intermediate output variables should be qualified with comments on the social and psychological ramifications of scale (as in section 5.2.3(b)). Criticisms of cost functions for not measuring final outputs are valid, but are criticisms of research methodology and not of cost function analysis itself. Where cost function analysis can be criticised is in the occasional neglect of multiple outputs. These are difficult to include in the modelling but certainly not impossible and a number of feasible techniques are currently available, particularly with the development of translog functions (Christensen, Jorgensen & Lau, 1973). Some studies have erred in the opposite direction, using summary indices of output often with cost-based weights to aid the aggregation. The rejection of multiple outputs as separate regressors in this way is tantamount to throwing the baby out with the bath water.[20] If there are so many output variables relative to the number of observations that inclusion of them all as separate regressors becomes impossible or dangerous then empirically-determined indices or indices based on charges (or similar) may be feasible (Adelman & Morris, 1965; Kloek & Mennes, 1960; Pauly, 1978).

(c) A related difficulty arising from inadequate specification of output has been termed the regression fallacy (Friedman, 1955). If scale is measured as output, biases may arise through transitory output components. Small producers (as measured by output levels) are more likely to be operating at unusually low capacity rates, whilst larger production units (higher levels of output) are more likely to be operating near to full capacity. If output and rate of use of capacity are not related, the regression fallacy argument will not hold. If the two are

[20] Staehle (1953, p.270) wrote: "This process seems highly objectionable ... It ... amounts to determining output by costs, i.e. to introducing a spurious dependence where measurement of an independent relationship is really wanted". See also Johnston (1960, pp.185-6).

related it is best to include both the number of places (or residents)
and the occupancy rate in the estimated equation (Feldstein, 1967, pp.60-1;
Johnston, 1960, pp.188-192; Verry & Davies, 1975, chapter 3).

(d) Theoretically, the cost function is derived and examined under
an explicit or implicit assumption of cost minimisation. The plausibility
of this assumption has frequently been questioned in social services and
related contexts (e.g., Glennerster, 1975, pp.23-25). If cost-minimisation
is not an objective of the producer then the estimated cost function
cannot be interpreted as the cost-output (or cost-minimising) frontier,
subject only to random differences in efficiency and "pure" random
variations. Instead, the fitted function represents the "average"
(mean) relationship between cost and output,[21] and residuals indicate
deviations from the average degree of efficiency. If producers do not
minimise costs, or attempt to minimise them, the cost function loses some
of its appeal, but certainly remains very useful. Hanushek (1979, p.
370) argues in a related context that non-minimisation allows economic
inefficiency but does not invalidate the cost or production function
"unless resources are also wantonly squandered". The fitted function
can be interpreted as a behavioural rather than a technical relationship
(Pauly, 1978, p.79; see also Davies & Knapp, 1978, pp.18-19) and
policy recommendations derived therefrom interpreted accordingly. If
such interpretations are felt to be insufficient, frontier cost functions
may be fitted. These represent a relatively new development in econometrics
and suggested frontier techniques are only now beginning to be used by
researchers other than the most competent of econometric theorists. The
techniques are not always easy to apply, and can be computationally
expensive, but have the distinct advantage of producing meaningful
measures of the cost- or price-efficiency of individual producing units.
Residuals from estimated frontier functions are interpreted as measures
of efficiency relative to the "best possible" cost-output relationship,
with "pure" stochastic variations included as and when desired.[22] Thus,

[21] If all producers (homes) were economically efficient and faced identical
input prices it would simply be impossible to estimate a cost function
because of lack of identification.

[22] An excellent review of the current state of play of these frontier
techniques for cost and production functions (and others) is given in the
whole issue of the Journal of Econometrics, 13, 1980. See also Seitz
(1971), Førsund & Jansen (1977),

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even when cost-minimisation is not apparently a reasonable assumption to
make, the interpretation of the conventional cost function (estimated
as an "average" and not a frontier relationship) is not so altered as to
render it useless. Indeed, it remains very important. Furthermore, the
recently developed frontier techniques have the potential to retrieve some
of the lost ground which non-minimisation of costs might otherwise imply.
Of course, there are those who believe that cost-minimisation might not be
such an unrealistic assumption after all. In America, Carr & Feldstein
(1967) and Mann & Yett (1968) found that many health service agencies
sought to minimise costs, and in Britain the exhortations of central and
local government and the realities of recession in recent years may be
held to have encouraged cost-minimisation by personal social services
agencies (see, for example, DHSS, 1976b, paragraph 1.20; DHSS, 1979,
paragraph 7.13; and the numerous calls for efficiency cited in chapters
1 and 6 above). A more ingenious argument could be based on some of the
more popular economic theories of organisations which do not assume,
directly at least, the maximisation of profits.[23] These models, such as
those of Newhouse (1970), Niskanen (1971) or Williamson (1967), all posit
the pursuit of utility maximisation by producers, and "efficiency" in
this pursuit, and this can be argued to be consistent with an assumption
of cost-minimisation (Verry & Davies, 1975). Alternatively, rejecting
the assumption of optimising behaviour by producers, as argued by Cyert
& March (1963), Simon (1947) and other organisational theorists, we can
posit a degree of "organisational slack" and "entropy". However,
organisational slack will only be maintained if the "exit" and "voice"
forces are negligible (Hirschmann, 1970). In the case of the management
and accountability of old people's homes, "exit forces - the option or
power to withdraw custom - are likely to be negligible (except perhaps
when one is discussing the residents of voluntary and private homes
supported by local authorities). On the other hand, "voice" forces -
the option or power to complain and "press ... demands to management through
internal hierarchical or external political channels"(Young, 1976, p.34) -

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[23] These arguments are developed from Young (1976).

are likely to be important. Hirschman's theory says that an organisation
sensitive to or subjected to exit or voice forces will tend to reduce
organisational slack and adopt the objectives of the pressure groups. In
the case of old people's homes, and of other personal social services, the
pervading forces are currently demanding cost-efficiency in a more or less
explicit form (cf. section 2.2 above). Summarising these points, I am
arguing that cost-minimisation might not be such an unreasonable assumption
to make after all, so that the cost function might be interpreted in the
normal way as an approximation to the (stochastic) frontier, with deviations
from it being attributed to inefficiencies and random disturbances.
Alternatively, if cost-minimisation is not a reasonable assumption to
make then we can either interpret the ordinarily-estimated cost function
as a purely behavioural and not technical relationship, or we can employ
one of the recently developed frontier estimation techniques.

(e) Many of the early criticisms of cost functions argued that under
certain circumstances, which frequently pertained, the estimated
functions were biased towards linearity. They were also critical of
functions estimated from cross-section data. The force of these arguments
is greatest in competitive markets (Friedman, 1955; Malmgrem, 1959;
Walters, 1963) but will be of little consequence in the personal social
services area, unless it is felt that the sizes of producing units
have been determined by cost-minimising scale or output range. A number
of other biases towards linearity have been put forward, ranging from the
ingenious to the lunatic, but Johnston (1960, pp.169-185) appears to have
dispelled these arguments once and for all.

(f) Other criticisms levelled at estimated cost functions have been
technical criticisms concerning the econometrics of estimation. Principal
among the misspecifications noticed are multicollinear regressors,
heteroscedastic residuals, simultaneity and measurement error. The mode
of estimation employed has not always been appropriate. These are merely
technical problems and should be easily rectified with respecification of
the estimated relationships or more careful data collections. They do
not constitute criticisms of cost functions per se.

These are the principal criticisms of cost functions, although
doubtless other criticisms have been and will be made. The conclusions

drawn here are that the technique of cost function estimation is based on
assumptions which appear to be reasonably appropriate for the study of
old people's homes, despite differences between the production of welfare
and more conventional production processes; that inadequacies pointed out
by previous authors are purely methodological and not directed at or
peculiar to the cost function approach itself; and that in the comparison
of cost differences (and, to some extent, benefit differences) the cost
function remains the most appropriate, valid and useful technique to adopt.
The next section describes three estimated cost functions which, whilst
bedevilled by a lack of information on some of the likely causal factors,
provide both an indication of the potential of the technique and some
tentative policy recommendations.

7.4 Cost Function Estimation in Practice

Three separate cost function exercises were undertaken and are
reported briefly here. The first subsection describes the stages of cost
function estimation, following Dean (1976), which are common to all three
examples.

7.4.1 The Stages of Estimation   These stages are followed in each and every
empirical study, although they are not always made explicit.

(a) Select a production unit suitable for analysis. In a personal
social services context the home is the production unit (or "plant") and
the local authority or organisation is the "firm". Estimating cost functions
only at the local authority level will mask all intra-authority variation
(which the first two examples below suggest may be considerable) and may
introduce aggregation biases into the estimates.

(b) Decide on a measure of output. Final outputs are preferred but
if unavailable a selection must be made from available intermediate
indicators. Multiple outputs will be the rule rather than the exception
and are included in the analysis either by estimating a separate cost
function for each, or by computing an output index, or (preferably)
including them as separate influential factors.

(c) Determine the time unit of observation. Ideally, cost, output
and other factors would be measured for a basic time period within which

the rate of production was uniform. With occupancy rates changing
daily, weekly cost figures will "obscure the true underlying cost curve"
(Johnston, 1960, p.26). Annual figures, as used here, are even less
satisfactory if occupancy rates (and other variables) change markedly
during the year. The costs of collecting the ideal data, however, would
probably outweigh the benefits of their analysis.[24] Inappropriate time
units of collection may introduce a degree of endogeneity, and hence
simultaneity if appropriate estimation techniques are not used.

(d) Choose the period of analysis. The choice is between a cross-
section, time series or panel design. Panel data would be ideal if
accompanied by suitable estimation techniques, but is often expensive
to collect. The choice between cross-section and time series designs is
usually dictated by data availability. It is sometimes argued that a
cross-section design allows the estimation of a long-run cost function,
whilst time series data gives the short-run function. The argument appears
to be that in the cross-section, firms can be assumed to have adjusted inputs
to their optimal levels (the long-run, cost-minimising, levels), although
there would seem to be little chance of actually observing an optimally
adjusted firm (Johnston, 1960, p.30). In the cross-section, producing
units will be observed with fixed inputs reflecting the different
"technologies" at the dates of construction. Only if "technical change"
is relatively slow or if producing units are of similar vintage can a
cross-section study validly lay claim to supplying accurate information
on the long-run cost curve. "Technical change", such as it is, has
probably been slow in old people's homes in so far as home design,
staffing arrangements and policies, and care policies only evolve slowly.
The cross-section cost functions reported below may therefore not be
far removed from the long-run relationship, although the omission of capital
cost data may force us to qualify this interpretation.[25]

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[24] Winn & Maker (1974) questioned top administrators of nursing homes and
homes for the ageing in the USA and reported that comparative cost data
collected on a quarterly basis was felt to be sufficient for effective
management.

[25] Indirect estimation techniques have been suggested to counter these
potential difficulties; see, for example, Meyer & Kraft (1961), Eads,
Nerlove & Raduchel (1969), Seitz (1971) and Keeler (1974).

(e) <u>Decide on the measure of cost</u>. Again, the ideal differs from
the available - in this case, opportunity costs would be preferred but
are difficult and expensive to collect, particularly for a large number
of production units. Expenditure (or accounting) figures are therefore
used, and the researcher must decide which expenditures to include and
which to exclude. Debt charges and revenue contributions to capital
outlay, reported in most social services accounts, do not adequately measure
capital costs and should be excluded. Operating costs are thus usually
estimated alone, although it is sometimes possible to supplement the
findings with a certain amount of capital cost information. In the more
labour intensive personal social services, the low degree of substitution
between capital and other inputs allows the separate analysis of operating
and capital costs with relatively little estimation error (Hirsch, 1968).
Overhead costs and the costs of peripatetic inputs such as specialised
care staff and general practitioners, should be included when appropriate
and when feasible.

(f) <u>Select the cost concept of interest</u>. At this stage the researcher
must decide whether to use average or total cost as the dependent variable
in the regression. Obviously the average cost can be calculated from
an estimated <u>total</u> cost function; and vice versa, but there are differences
in practical circumstances between the two functions. The arguments for
estimating a total cost function in preference to an average function
concern the bias and spurious correlation introduced by errors of measure-
ment in the deflating variable (the basic output variable), whilst the
arguments in favour of average functions stress the susceptibility of
total cost expressions to the undesirable influences of multicollinearity
and heteroscedasticity (Casson, 1973; Feldstein, 1967; Griliches, 1972).
Total cost expressions were estimated in the first two studies reported
below and tested for both heteroscedasticity (which was not found to be
present) and multicollinearity (which was only of the "incestuous"
variety). The third example used average cost per resident week as the
dependent variable as this was the cost concept reported and there was
no information on "resident weeks" with which to convert to total cost.

(g) <u>Deflate the cost data</u>. Input prices can either be used to
deflate the observed costs at the outset (as here) or else used as separate
regressors in the cost function. Dean (1976) and Johnston (1960) both

recommend deflation, although the theoretical form of the cost function suggests the other approach (section 7.2.1). Estimated cost functions have been roughly equally divided in the procedures adopted. In the studies reported below, price data was not available although this may not be particularly serious in the present context (see section 7.2.2(a) above).

(h) Match costs with output and other determinants. If there is a lag in either the payment for resources employed or in the recording of output the matching of cost and output may not be straightforward, but this is not a common or insurmountable problem. Other potential influences upon cost should also be matched carefully.

(i) Select the form of the function. Multiple regression analysis is the most likely estimation technique to be used, the choice of technique then depending on the endogeneity or otherwise of the predictive factors, the presence or otherwise of such "nuisances" (or simplifications) as serial correlation, heteroscedasticity, and so on. The functional form of the relationship should be selected both on a priori theoretical grounds to accord with the assumed underlying production technology and on the empirical grounds of goodness of fit, accordance with prior notions or restrictions, and parsimony. In the case of old people's homes, the "production technology" is not sufficiently precise or obvious to allow the rigid specification of functional forms.

7.4.2 Example A: Cheshire County Council Homes, 1973-74   The data on which the estimates are based were made available by the Social Services Department of Cheshire County Council. They were collected in a survey of all residents in the county's sixty-four old people's homes towards the end of 1973. The data about residents were supplemented by cost and occupancy statistics for the financial year 1973/4. Eight homes were omitted from the analysis as they had only been completed during that financial year and thus offered incomplete information.

The Cheshire survey covered a variety of characteristics that cause dependency. The method used was to ask the matron of each home to assess each resident in her charge in terms of mobility, mental state, behavioural problems, continence and capacity for personal self-care. Information was

collected for a total number of 1,761 residents and it has been outlined
elsewhere (Kimbell, Townsend & Bye, 1974; Townsend & Kimbell, 1975). In
order to condense the information of these five dimensions into a summary
dependency rating, the fourfold classification scheme developed by the
Department of Health and Social Security (DHSS) in The Census of Residential
Accommodation of 1970 was adopted (see Appendix to chapter 3 for details).
The DHSS classification was adopted partly because it was my intention to
use the cost estimates derived in conjunction with data from the residential
census in a production analysis which is reported in chapter 8. Recent
work by Williams et al (1976), Bebbington (1977) and Wright et al (1979)
suggests that a unidimensional dependency scale such as that used by the
DHSS differentiates well between individuals.

The cost measure selected for the regression analysis was total
operating cost, for the reasons outlined in section 7.4.1(f). The basic
functional form used for estimation was:

$$TC = a_o + a_1 RW + a_2 RW^2 + a_3 RW^3 + a_4 H/N + a_5 A/N + a_6 L/N + a_7 ADM + u$$

where the following notation has been adopted: N = total number of residents
(= H + A + L + residents of minor dependence); TC = total operating costs
for the financial year 1973/4; RW = number of resident weeks (1973/4);
H = number of heavily dependent residents on day of survey; A = number of
appreciably dependent residents; L = number of residents of limited
dependence; ADM = number of residents living in the home for less than
twelve months; and u = residual term.

The cost function equation was estimated by ordinary least squares.
It could be argued that "resident week" is an intermediate output
endogenously determined in a full specification of the production model
of residential care. This could lead to simultaneity bias and inconsistency
in the coefficient estimates. However, the cause of the simultaneity is
unlikely to be important, if it exists at all, and will be one of many
determinants of the residuals in the function. The ADM variable was found
to be statistically non-significant in the cost function and was subsequently
dropped from the final equation. The dependency-profile indicators
(H/N, A/N and L/N) are not endogenous, even if the matron chooses residents
to suit the characteristics of the home. Dependency states change in a
way which is not controllable. Moreover, Feldstein (1967, p.95) has

argued that, in circumstances in which the numbers in the dependency
categories are endogenous, the corresponding proportions are not.[26] Two
goodness-of-fit criteria were adopted - the t-test for the significance of
individual parameters, and the multiple correlation coefficients about zero
and about the mean, both adjusted for degrees of freedom.[27]

The results of the estimation procedure are as follows:

$$TC = 36.54(RW) - 0.0145(RW^2) + (3.06 \times 10^{-6})(RW^3) + 6744.9(H/N)$$
$$(7.73) \qquad (3.63) \qquad\qquad (2.89) \qquad\qquad (1.59)$$
$$+ 4898.3(A/N) + 508.7(L/N)$$
$$(0.75) \qquad\quad (0.10)$$

where figures in parentheses below the estimated coefficients are the
estimated t-statistics. The multiple correlation coefficients are 0.882
about the mean, and 0.999 about zero. The Farrar & Glauber (1967) 'test'
for multicollinearity revealed only "incestuous" interrelationships
between RW, RW^2 and RW^3, but none among or with the dependency proportions.
The Goldfeld & Quandt (1965) test of the null hypothesis of homoscedasticity
gave $R = 2.28$ which could not be rejected at the 5% level. The departure
from linearity, as captured by the inclusion of the square and the cube
of RW as regressors, is significant, as can be seen from the corresponding
values of the t-statistic. As we shall shortly see, this non-linearity
causes average costs to rise slightly for larger homes. The dependency-mix
variables enter the equation only linearly. The coefficients for A/N and
L/N are of very low statistical significance but the variables are retained
to yield average and marginal cost estimates. The equation has no intercept
(constant) term, implying that total costs will be zero when there are no
residents. In other words, there are no significant fixed operating costs,
a result which one should expect, given the definition of TC. Of course,
one would expect non-zero fixed capital costs. The overall goodness-of-fit,

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[26] A further reason for preferring dependency proportions to numbers was that,
while the number of residents at the time of the survey may have been
considerably larger or smaller than the average number of residents during
the year, the dependency proportions will probably have been fairly steady
throughout the period. Instrumental variable estimates were also computed
and were found to differ only slightly from the ordinary least squares
values. Details of this and other technical aspects of the analysis are
available upon request from the author.

[27] Conventionally, the correlation coefficient about the mean is reported.
Strictly, however, it is the coefficient about zero which should be used
as an indicator of goodness-of-fit, because the reported equation has no
intercept (constant) term.

as reflected in the coefficients of multiple correlation, is very encouraging given the fact that the data were not collected for the pruposes of cost function estimation.

This estimated cost function can be used to examine a number of questions relevant to policy formation in the area of care of the elderly. It is first useful to distinguish two cost concepts from the estimated function: hotel costs (the costs of providing care for someone of the hotel-resident level of dependency distinguished originally by Bevan[28]) and dependency costs (the additional costs made necessary by the three other levels of dependency). Neither hotel nor dependency costs have been identified with any cost items in particular (they might even be termed "joint products") but they can be separately estimated from the estimated function. Hotel costs are given by the first three terms in the estimated function, and dependency costs by the last three terms. Average hotel costs are given by:

$$AHC = 36.54 - 0.0145(RW) + (3.06 \times 10^{-6})(RW^2)$$

which has a minimum of £19.36 per resident week for a home operating at 2369 resident weeks per year (or roughly 50 places). If all residents were of minor dependency this would represent the cost-minimising scale. However, it is likely that a sizeable number of residents will be more dependent than this basic "hotel" level. Average dependency costs (ADC) are calculated for each level of dependency in turn:

$$ADC(H) = 6744.9/RW \qquad ADC(A) = 4898.3/RW \qquad ADC(L) = 508.7/RW.$$

These hyperbolic functions imply that the average cost of caring for a heavily dependent resident is greater than that for an appreciably dependent resident, and so on, but that the differences get smaller in larger homes. Combining these two cost concepts to obtain the (overall) average operating cost function allows the illustration of the possible range of values for average cost as home size and dependency vary. This is shown in Figure 7.1 which well illustrates the impact of both scale and dependency upon cost.

To these average operating costs must be added a per-resident capital component reflecting the costs of employing the building and the land in the provision of residential care facilities. These capital costs depend crucially upon the planning period assumed, as is also the case with the

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[28] House of Commons Debates, Session 1947-8, vol.444, col.1669, and see section 2.2 above.
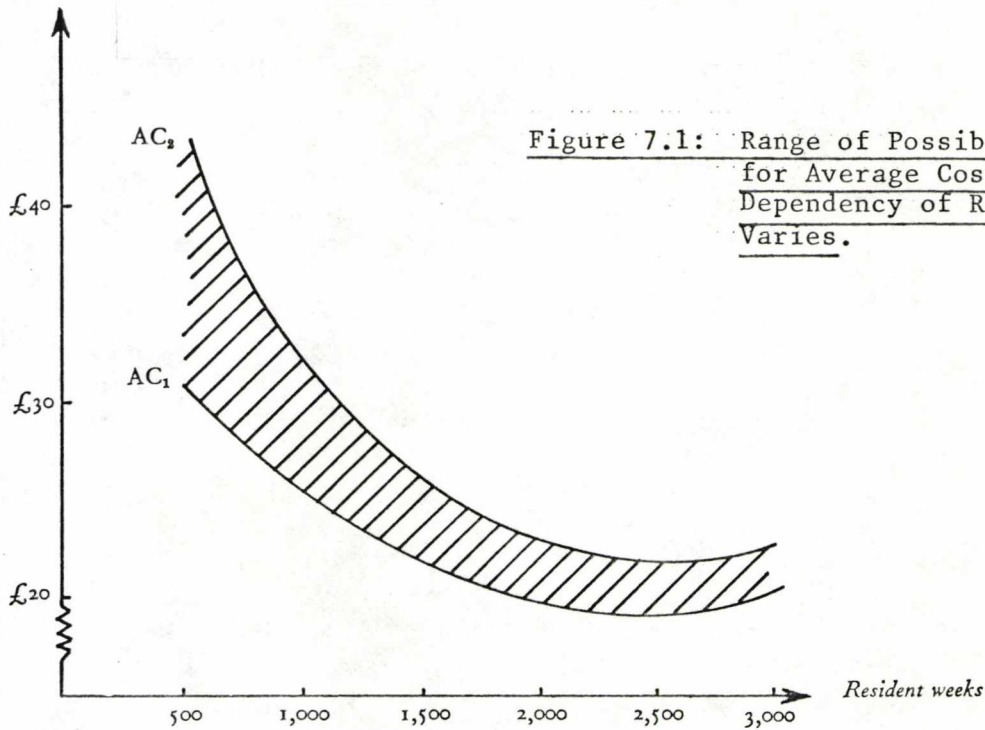
Figure 7.1: Range of Possible Values for Average Costs as the Dependency of Residents Varies.

-marginal costs of care. Thus two planning periods are distinguished below - a short-run period during which the supply of residential care places is assumed to be fixed, and a long-term period in which the number of places may be increased by the construction of new homes or the conversion of existing premises.

(a) Long-run costs. In the long run the number of residential care places offered by the local authority can be increased; new homes may be constructed, or existing premises can be suitably converted. With such a planning horizon, the local authority is interested not only in the costs of operating homes but also in the costs of construction or conversion. This I pose, therefore, as the main question to be answered in long-range planning: what is the least-cost size of home in a situation in which the local authority is considering an expansion of residential care services? In a sense, this question restricts the range of long-run questions that could be posed. In particular, on the completion of a new home, what are the 'capital' costs of using it for residential care? This question we shall answer in the next section, under the heading of short-run costs.

Data on the costs of land purchase, building construction or conversion, and initial furnishings were not available. However, the study by Wager (1972) has considered these costs, and examined how they vary with the size of home. A simple bivariate regression analysis of unit construction costs on the number of places was conducted by Wager, obtaining a significant correlation coefficient of 0.89 with a sample of seventeen homes. To these unit costs were added per resident land costs and furniture and equipment costs, the latter being invariant with the size of home. Construction costs accounted for approximately 83 per cent of unit capital costs. After selecting suitable 'project lives' for each component and two alternative rates of discount, Wager was able to calculate capital costs per resident per week. Taking this long-run forward-planning viewpoint, capital costs account for only between 24 per cent and 40 per cent of total costs per resident per week.[29] Capital costs for a residential home converted from existing premises would almost certainly constitute an even smaller percentage of total costs.

Turning now to marginal cost, defined as the change in total cost consequent upon the production of an incremental unit of output, that is, the cost of caring for an additional resident, we must once again be careful to distinguish between the long-run and the short-run. In the long-run, marginal operating costs can be obtained by partial differentiaton of the relevant total cost function with respect to the unit of output. This procedure gives a quadratic marginal hotel cost (MHC) function:

$$MHC = 36.54 - 0.029(RW) + (9.18 \times 10^{-6})(RW)^2$$

Marginal dependency costs (MDC) are obtained, after similar partial differentiations, for each dependency group in turn. These functions are:

$$MDC(H) = \frac{6,744.9}{RW} \qquad\qquad MDC(A) = \frac{4,898.3}{RW}$$

$$MDC(L) = \frac{508.7}{RW} \qquad\qquad MDC(M) = 0.$$

Marginal cost information is necessary for making decisions about the allocation of resources. One can establish the cost of caring for an additional resident of given dependency by adding MHC to the relevant MDC function. Clearly these marginal costs are themselves dependent on the

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[29] Further details are provided by Wager. See also Davies & Knapp (1978, Appendix).

number of residents already in care.

Finally, one must add a component reflecting the additional capital costs incurred in providing residential care for an additional client. Although it is not possible to provide accurate estimates of such marginal capital costs, it is reasonable to assume that, if the additional resident was accommodated in an existing home, these capital costs would be very small indeed. However, once all the existing places were filled, additional clients would have to be housed in new homes, so that the marginal capital cost would suddenly rise.

(b) Short-run costs. The short-run planning period is defined here as the period of time during which the number of places in residential homes for the elderly is effectively constrained upwards, that is, during which the local authority cannot entertain thoughts of constructing new homes or even of converting existing premises.

Short-run costs are given by the sum of average operating costs and a per-resident capital component. In contrast to the long-run case, where capital costs are calculated on the basis of the estimated (opportunity) costs of land purchase, construction, and equipment, the short-run capital costs need bear no relation to the historical costs of construction and so on. In particular, if the local authority has long since purchased the building outright, it may appear that there are no current capital costs. It would be incorrect, however, to take capital costs as zero, for it is the opportunity cost of employing the building as a residential home for the elderly that is the relevant cost concept. It was not possible to attempt such opportunity costing here.

Marginal cost rather loses its meaning in this short-run period, when, by very definition, the number of residential care places cannot be increased.[30] Instead, we can distinguish what could be called a 'marginal substitution cost' which is equal to the change in total costs attributable to the replacement of one resident who has left the home through death, transfer or rehabilitation by another resident. For example, if an appreciably dependent resident was deemed to be in need of hospital treatment and was replaced in the home by a former community-residing individual who was assessed to be heavily dependent, then the marginal

[30] Although, of course, marginal costs of additional residents with a fixed number of places are defined in the same way as the 'long-run' marginal costs discussed above.

substitution cost attributable to such a replacement would be equal to
the difference in marginal cost:

$$MDC(H) - MDC(A) = \frac{6,744.9}{RW} - \frac{4,898.3}{RW}$$

where RW represent the 'level of operation' or size of the home. Thus a
home with fifty residents (with RW $\simeq$ 2,605) will incur an additional cost
of £0.71 per week as a result of such a change, whilst a small, twelve-
bed home will incur additional costs of £3.36 per week. Similar expressions
will be obtained for each possible combination of dependency categories.
Obviously, if one resident is replaced by a less dependent resident, the
marginal substitution cost will be negative, indicating a saving to the
home. Hotel costs and capital costs will not alter as a result of replace-
ments such as these - a result dictated by the failure of the turnover
variable (ADM) to register any significance in the regression.

One other use of the estimated Cheshire cost function is in the
examination of inter-temporal differences in costs. In table 3.10 of
chapter 3 were presented the percentages of residents in local authority
homes in Cheshire in each of the four dependency categories for both
1970 and 1973-4. We can now combine this dependency data with the cost
function to examine the cost implications of increasing dependency over
the period.[31] Average home size fell slightly between the two surveys,
with the average number of residents falling from 28.8 per home to 27.6.
There were 3 more homes in 1974 than in 1970, but only an extra 9
residents. For the purposes of this illustrative example I shall assume
that all homes in 1970 had an average of 28.8 residents during the year,
and that all homes in 1973-4 averaged 27.6 residents. The calculations
reported here could be redone for each home in turn, taking accurate
account of home size, but this simplifying assumption is sufficient for the
present purposes. Average costs are dependent upon the number of residents
(or resident weeks), and because this number has fallen the average cost
will have risen slightly by 1973-4 because of diseconomies of scale. At

[31] The computation reported here, whilst accurate, can only be regarded
as illustrative of the technique of inter-temporal comparison. A full
and proper comparison of cost inflation would have to take account of
changes in policy regarding the placement of the elderly with voluntary
and private providers, changes in the provision of substitute and
complementary services, changes in the relative prices of inputs
(particularly staff inputs), and so on.

1973-4 "prices", the average cost per resident week can be computed for both 1970 and 1973-4, given this average home size and the estimated cost function (table 7.1). The figures in table 7.1 indicate only the cost

Table 7.1: Average Costs, by Dependency, 1970 and 1973-4

	Cost per Resident Week (1973-4 prices)			
	Heavy Dep.	Appreciable Dep.	Limited Dep.	Minor Dep
1970	26.18	24.95	22.02	21.68
1973/4	26.73	25.44	22.38	22.03

differences in average home size. The dependency proportions can now be introduced to allow the calculation of overall average cost, weighting each average dependency cost by its corresponding dependency proportion (from table 3.10). This gives average costs of £23.10 per resident week in 1970, and £23.63 in 1973-4. Thus, at constant 1973-4 prices, average cost per resident week increased by 53p between 1970 and 1973/4, this inflation being due simply to a change in average home size and changes in dependency proportions. The total additional cost borne by Cheshire County Council in 1973-4 would have been nearly £49,000.

7.4.3 Example B: Kent County Council Homes, 1975-76. Data for this study were made available by Kent County Council Treasurer's Department and refer to the entire population of the County's 47 old people's homes and 6 mental health establishments. Total operating costs were obtained as the sum of expenditures on resident provisions, clothing and laundry, staff pay and allowances, staff provisions and laundry, buildings and grounds (maintenance), administration, decorations and major repairs. Total cost was again preferred to average cost as the regressand, although both equations are reported for completeness. The directly estimated total cost function is used as the basis for discussion. Post-estimation testing revealed, contrary to expectation, that heteroscedasticity was less of a problem in the total cost function than in the average cost expressions, and in the total cost case the null hypothesis of homo-scedasticity could not be rejected.

An intermediate output measure was again used in this example - the average daily number of residents - and positive and negative exponents of this variable were entered, and retained where significant, in the estimated equations. Two other types of variable were included: a measure of occupancy

(average daily number of residents divided by number of available places), and a number of dummy variables hopefully reflecting differences in clientele between homes (in the absence of information on individual residents). In Kent, four types of old people's homes are distinguished: Non-Designated Homes, accommodating the more active resident (26 homes), Designated Homes, accommodating the more infirm resident (15 homes), Homes for the Socially Inadequate (2 homes), and Homes for the Elderly Mentally Infirm (4 homes). Simple zero-one dummies for three categories of home are introduced into the fitted equations, the fourth being included only when the equation has a prior zero restriction on the intercept term. In addition, there are in the County four establishments used jointly by the Social Services Department and the Area Health Authority, and six mental health establishments. The former are excluded from the study because of data commensuration difficulties; the latter are included at a second stage and the conventional Chow-Fisher framework used to test the validity of their inclusion. The only alternative to this procedure is to estimate a cost function for the mental health establishments in a number of areas (to ensure sufficient degrees of feeedom). This, of course, immediately raises important questions as to degree of similarity in the different data sets, as discussed earlier.

A number of alternative functional forms for the total and average cost equations were fitted to the available data by both ordinary least squares (OLS) and the instrumental variables (IV) method. The latter technique was applied in an attempt to remove simultaneity bias in the estimated coefficients which would pertain if the output variables (the average daily number of residents, and exponents thereof) were thought not to be independent of the regression residual term. This would be the case if intermediate output was endogenously determined within a full production model of residential care. Whilst this may be true, the cause of the simultaneity is probably not particularly important and there are undoubtedly many other factors which contribute to the residual terms in the cost function. For these reasons, the OLS estimates will suffer little from bias and inconsistency and may be accepted with reasonable confidence (Johnston, 1960; Jackson, McDougall & Wright, 1974). Furthermore, from a practical standpoint, the range of potential instrumental variables available in the present case was extremely limited and it was found that the

coefficient estimates, standard errors, and overall fit were very sensitive to slight changes in the included instruments.[32] The final equations reported below were estimated by ordinary least squares.

Each alternative functional form was estimated for two samples - firstly, for forty-six of the old people's homes, the forty-seventh being dropped because it had more than three times as many places as any other home and so tended to distort results, and secondly for these forty-six homes plus the six mental health establishments. It is then possible to test whether the set of regression coefficients estimated from the first sample is different from the set estimated from the second, using as the test criterion the F statitic suggested originally by Chow (1960), and simplified by Fisher (1970). It can be shown that, if $\underline{u}$ and $\underline{v}$ are the vectors of calculated residuals from the first and second regressions, respectively, then the statistic $(\underline{v}'\underline{v}-\underline{u}'\underline{u})(M-k)/\underline{u}'\underline{u}N$ is distributed as F with $(N,M-k)$ degrees of freedom, where N is the number of observations in the first sample (in this case, 46), M the number of additional observations in the second sample (six), and k the number of regressors. For nearly all forms of total and average cost function the null hypothesis that the two sets of regression coefficients were identical could not be accepted, although the decisions were frequently marginal. For example, for the final equation (reported below) the statistic took the value 2.84, which fell between the $2\frac{1}{2}$ and 1 per cent critical values for $F(6,40)$. We are thus forced to drop the six Mental Health Establishments from the analysis. The regressions which best fitted the data are thus:

$$TC = 116.43(RES) - 2.488(RES)^2 + 0.0194(RES)^3 + 9.77(RES.DES)$$
$$\quad\quad (3.92) \quad\quad\quad (3.46) \quad\quad\quad\quad (3.42) \quad\quad\quad\quad (3.95)$$

$$\quad\quad + 19.25(RES.ME) - 614.75(OCC) \quad\quad \bar{R}_o^2 = 0.984, \ \bar{R}^2 = 0.892$$
$$\quad\quad\quad (5.21) \quad\quad\quad\quad (1.27)$$

$$AC = 117.69 - 2.636(RES) + 0.0213(RES)^2 + 10.31(DES)$$
$$\quad\quad (4.72) \quad\ (3.77) \quad\quad\quad (3.46) \quad\quad\quad\ (3.40)$$

$$\quad\quad + 17.30(ME) - 555.80(1/PLA) \quad\quad \bar{R}^2 = 0.456$$
$$\quad\quad\quad (3.67) \quad\quad\quad (1.60)$$

where: TC = total operating costs per week (1975/76); AC = average operating costs per resident week; RES = average daily number of residents; DES = dummy variable taking value 1 if home is Designated (for relatively

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[32] There was not enough information available on homes or production relations to use the more efficient two stage least squares estimation technique.

more physically infirm residents), and 0 otherwise; ME = dummy variable
taking value 1 if home is for the Mentally Infirm elderly, and 0 otherwise;
OCC = number of available places divided by average daily number of
residents; and PLA = number of available places. The goodness-of-fit
statistics differ between equations. For the average cost regression
the conventional multiple correlation coefficient about the mean,
adjusted for degrees of freedom, is computed. For the total cost regression,
where there is no intercept term, a more appropriate measure is the multiple
correlation coefficient about _zero_, once again adjusted for degrees of
freedom. Both statistics indicate the fit to be encouragingly high.

The reported average cost function corresponds in principle with the
TC equation; in practice, there will be differences in coefficient
estimates as a result of differences in the extent of multicollinearity
among the regressors and in the extent and nature of errors of measurement
and deflation. However, as multicollinearity, if present, affects
only the estimated standard errors and hence the precision of estimation,
and as measurement errors induce bias and inconsistency in the
coefficient estimates, one is led to prefer the (unbiased) TC coefficients.
In fact, each of the AC coefficients lies well within the 95% confidence
interval of its corresponding TC coefficient. The dummy variables for
Non-Designated Homes and Homes for the Socially Inadequate did not
significantly influence costs and were thus omitted. The remaining
two dummies were used in a multiplicative fashion in the TC function,
changing the slope coefficient on the RES variable. The average cost
of care of one resident for one week is thus £9.77 more in Designated Home
(for the less active), and £19.25 more in Homes for the Elderly Mentally
Infirm. Basic average costs vary with the number of residents and number
of available places with a minimum of £36.84 in 66 bed (RES = 60) homes.
Smaller and larger homes are more expensive, although diseconomies of
scale set in only fairly slowly.

The equations were examined for the presence of heteroscedasticity in
the residuals and multicollinearity among the regressors. Heteroscedast-
icity can be defined either as a non-diagonal residual covariance matrix
(residuals are not independent of each other across observations) or as
a diagonal covariance matrix but with unequal diagonal elements (variances).
Both varieties of heteroscedasticity will give rise to inefficient,

though unbiased estimates. A couple of preliminary diagnostic checks for heteroscedasticity were made - a graphical examination of the plot of residuals against both cost and output, which will indicate whether residual variances are related to regression variables, and secondly the computation of the Durbin–Watson d statistic, which provides an approximate test for independence of successive residuals (after suitably ordering the sample of homes). Neither check suggested a deviation from homoscedasticity (the d statistic values were 2.234 for the TC regression and 2.049 for AC). Further confirmation was provided by the concordant result of the Goldfeld & Quandt (1965) parametric test. After removing the twelve "central" observations (the homes were ordered by size of RES), the residual sums of squares from separate regressions fitted to the first and last seventeen are computed. The ratio of these sums is distributed as $F(11,11)$. The values for the TC and AC functions were 1.29 and 5.17, respectively, the former being considerably less than the tabulated value for F at the five per cent level, but the latter being significant. Heteroscedasticity thus troubles the average but not the total cost function. The null hypothesis of homoscedasticity in the TC function is thus accepted.

To test for the presence of multicollinearity the correlation structure of the regressors must be carefully examined. Farrar & Glauber (1967) recommend regressing each explanatory variable on all the others and testing the multiple coefficient of determination in the usual manner using the standard F test. This revealed high multicollinearity among the exponents of RES, as is to be expected, but little linear dependence involving the other three regressors. The principle consequence of multicollinearity is to bias upwards the estimated standard errors of coefficients of the multicollinear variables, although leaving the coefficients and standard errors of linearly independent variables unaffected. This can sometimes lead to the erroneous exclusion of regressors. In the equations estimated here there would appear to be little danger of this, for all three powers of RES are significant at the five per cent level, whilst the inclusion of an additional regressor RES^4 made very little difference at all. A further consequence of multicollinearity is to make difficult the task of disentangling the relative influences of the multicollinear variables. Once again, in these functions the multicollinear variables

would never be considered in isolation from one another, simply because they are all functions of the same variable, RES.

The very satisfactory goodness-of-fit obtained for the two regressions, the non-rejection of the hypothesis of homoscedastic residuals, and the well-behaved nature of the multicollinearity structure, are such as to generate considerable confidence in the estimated total cost function for old people's homes. The Cheshire study (Example A) found that the cost-minimising home operated at 2369 resident weeks, equivalent to an average daily number of just under 46 residents. The additional inclusion of dependency costs shifted this minimum a little to the right, so that average (aggregate) operating costs were minimised at an average daily number of between 46 and 49 residents. Both the Cheshire and Kent cost functions thus lend cost-based support to the Building Note statement that: "A balance of economic and other values suggests a home of between thirty and fifty places" (DHSS, 1973, paragraph 3.5).

7.4.4 Example C: The Cost Implications of Home Design, 1975-76. In April 1975 the DHSS commissioned the Social Services Unit of the Social Administration Department, University of Birmingham, and Wyvern Partnership, Architects, to conduct research "to evaluate ... the small group principle" in the design of old people's homes. Homes were deemed to "embody the group principle if they were built for a number of groups of residents, each of which would eat, sleep and mainly sit separately from the other groups". The research was reported by Thomas, Gough & Spencely (1979) in a paper circulated with DHSS letter LASSL (79)10 to all local authorities and other interested parties. Among the research tasks, the researchers were "required to identify in their report any of the homes visited where it is likely that grouping has been achieved at a significant extra capital cost" (Thomas et al, 1979, paragraph 1.1). Capital and operating cost data were tabulated by Thomas et al, together with various details of the size and design of each of the homes in the sample (ibid, appendices F,G and H). The analysis of costs formed but a small part of the overall evaluation exercise, and only pairwise comparisons of homes were used to gauge likely causal connections between costs, home size, home design, and occupancy (see paragraphs 7.43-7.60). This data collection, which, because it was originally intended for somewhat different purposes, is inadequate in a number of respects, is used here to illustrate the likely causal

connections between costs and design. The results can only be seen
as very tentative because of the nature of the data but they are indicative
of the need to examine further these cost-design relationships with a bigger
and better data set.

The selection of the sample of homes and the methods of data collection
are described in detail in chapter 4 of Thomas et al (1979). The homes
were selected initially by the DHSS on the basis of information submitted
by Regional Social Work Service Officers. Three criteria were adopted by
the DHSS to guide their selection: (a) homes with more than 50 residents
were excluded; (b) group unit homes were defined as at the start of this
subsection;(c) all other homes were eligible for comparison if they were
built during the same period (i.e. since 1962). There was no attempt to
construct a statistically representative sample because of the exploratory
nature of the evaluation. Local authorities were approached with requests
for information on the buildings (plans, cost information, architect's
brief and any evaluation study) and on the running of the homes (costs,
staffing, residents and authorities overall policy on residential care
for the elderly). Visits were made to the local authority headquarters
(usually the social services department, rarely the architect's department)
and to all of the homes. In all, 16 local authorites were contacted,
design information was collected on 67 of their homes, and 50 of these
were visited. A questionnaire was sent out asking for details of costs,
occupancy rates, additional services provided and establishment figures,
using the CIPFA format to ensure reasonably consistent interpretations
of questions. 15 of the 16 authorities replied, the information for 4 homes
was insufficient for analysis, several other homes were not opened until
after the beginning of the financial year 1975-76, and 5 others were either
in their first year of operation (having abnormally high costs) or provided
only for the elderly mentally infirm. This left 46 homes from 12 authorities
in the sample.

Two multiple regression analyses were conducted: one for average operating
cost per resident week and the other for average capital cost per place.
However, the data for capital costs were too unreliable (in so far as they
came from different years and apparently included different items of
expenditure) to instil much confidence in the latter set of analyses. These
are not, therefore, reported or discussed here. The variables used for the

analysis of average operating cost were:

AOC = Average operating cost per resident week, 1975-76 (unfortunately
defined net of income with no adjustment to gross costs being
possible);

PLA = Number of resident places[33] (variously called the number of
places and the number of residents, the former interpretation
appears correct);

OCC = Percentage occupancy rate;

AGE = Number of years since building first occupied as a home;

CIR = Percentage circulation space;

COM = Average communal area per resident place;[34]

SPA = Average communal, sitting and dining area per resident place;

ARE = Actual area covered by the home;

DOU = Proportion of all places in double bedrooms (all others were
in single bedrooms); and

BED = Proportion of bedrooms (single and double) which exceeded the
recommended Building Note size.

As well as these variables, a number of dummy variables were formed for
different layouts and "sizes" of home. There were three basic character-
istics distinguished with each having three different categories:

Layout: Courtyard, a home which "had one or more courtyards formed
by corridors or by buildings containing the groups. Rooms
in the groups could be both inward andoutward looking. The
courtyards themselves were frequently used as outdoor rooms"
(ibid, para. 5.4).

Spider, with "wings containing the groups joined together
by a common corridor, but not enclosing space in the form of
a courtyard" (ibid, para. 5.4).

Block, which "with one exception, were 2 or 3 storey
cruciform buildings with groups leading off a central circulation
space. All but two of the non-group homes were in this category"
(ibid, para. 5.4).

Grouping: A group type of home is defined as one "built for a number
of groups of residents each of which would eat,

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[33] Notice that operating costs are expressed per resident week and home size
can only be measured in terms of number of places. There is thus a slight
inconsistency between the variables which again would have to be corrected
in any subsequent research.

[34] All areas measured in square metres.

sleep and mainly sit separately from the other groups".

A semi-group type of home is a variant of the group design suggested by Building Note No. 2, 1973. In this case "a 'group' unit is confined to bedrooms with some or all of the sitting space, and with communal dining facilities" (ibid, para. 5.2).

A non-group type of home is one with no clear grouping of residents.

Storeys: 1, 2 or 3 storey homes.

The Layout, Grouping and storeys variables are used individually and in combination and are all 0 - 1 dummies.

A number of different specifications of the operating cost function was estimated, the number of observations differing between equations because a home was dropped from the analysis whenever there was a missing observation on any one of the included variables. The final equation, reported below, was selected on the basis of overall fit (measured by the adjusted and unadjusted R^2 coefficient), the significance of individual coefficients and the number of included observations. No prior assumptions regarding the sign and size of individual coefficients were forced upon the equation. The final equation was:

$$AOC = 49.67 + 0.241(PLA) + 707.78(1/PLA) - 0.441(OCC) + 2.31(C1)$$
$$(1.80) \quad (0.76) \quad\quad (1.38) \quad\quad\quad (1.93) \quad\quad (1.34)$$
$$- 0.604(AGE) + 5.093(BED) \quad\quad R^2 = 0.395 \quad\quad n = 35$$
$$(2.34) \quad\quad (1.92) \quad\quad\quad (F = 3.051)$$

The figures in parentheses below the estimated coefficients are the t-statistic values. The equation fits the data reasonably well, particularly given all the various difficulties and ambiguities mentioned above. However, it is disappointing to note that very few design factors appeared to influence operating cost, although only a few rather crude design variables could be computed with the present data set. The variable C1 is a dummy taking the value 1 for courtyard, one storey, homes, and the value 0 for all other homes.

The estimated equation suggests once again that there are economies of scale in the running of old people's homes, although costs appear to rise slightly for homes with more than 55 places. High occupancy rates are associated with lower average operating costs per resident week, the association being significant at the 90% level. This accords with our prior expectations (as set out, for example, in section 7.2.2(d) above). Only two of the dummy variables for home layout and type appeared in this

final equation, actually in multiplicative form. The coefficient on Cl
suggests that homes which have a courtyard layout and are one storey high are
slightly, though no significantly, more expensive than other homes. Older
homes are cheaper to run, the difference being small but statistically
significant. Finally, the greater the proportion of bedrooms which were
over the recommended (Building Note 2) size, the greater the operating
costs.

These findings from the analysis of secondary data for a relatively
small sample of homes must be treated with some caution for the reasons
outlined in this section and in section 7.3.2. Nevertheless we may
tentatively conclude that some features of home design have an influence
on operating costs, and we must await further analysis to provide more
reliable and comprehensive evidence.

7.5 Conclusion

Estimated cost functions allow the examination and quantification of
the influences of a large number of theoretically plausible and
practically important factors. These factors were discussed at length in
the second section of this chapter. The three empirical examples of the
fourth section focussed on the influences of some simple intermediate
output indicators, occupancy rates, resident dependency and design
characteristics. Economies of scale were found to characterise all three
groups of home, with diseconomies of scale appearing to set in beyond a
certain home size. That critical size ranged from 50 to 60 beds for the
three samples, an encouraging degree of consensus. Occupancy rates had
their expected negative influences on average cost per resident (or
resident week), and it was found that the dependency characteristics of
residents behaved in the manner predicted by theory. The third study,
despite the data inadequacies noted earlier, suggested that home design
and operating cost are significantly associated. The three studies taken
together, therefore, provide evidence which will help to explain the
frequently observed variations in the costs of residential care. Clearly
what is needed now is a sufficiently comprehensive data collection for a
sufficiently large sample of homes to examine these observed influences
more carefully and to simultaneously test the predicted influences of the
other factors discussed earlier in the chapter.

Chapter 8   PRODUCTION FUNCTIONS FOR OLD PEOPLE'S HOMES

8.1 Introduction

The production of welfare approach to studying and planning residential care services for the elderly is built explicitly around a production function. The outputs of the production process are recorded at either an intermediate ("service delivery") level or, preferably, at a final ("improved well-being") level. Inputs range over all resource and non-resource factors which have an influence upon output. It is now time to examine empirical estimation of production functions for old people's homes. This chapter therefore introduces and defines the production function, briefly describes its general characteristics and its uses, and then presents a number of estimated functions using data collected in the Residential Census of 1970. It should be stated at the outset that the estimated relationships do not get anywhere near an empirical representation of the full production of welfare model. Final output measures could not be obtained, because of the expense and time-scale of the necessary fieldwork, and no non-resource factors are included for the same reason. Instead, the estimated relationships are "intermediate" production functions modelling the production or delivery of residential care services.[1] It should also be noted at this stage that intermediate outputs are perhaps less likely to be endogenously determined than final outputs, thus making cost function techniques more appropriate. The endogeneity or exogeneity of the inter-mediate output variable used in the present study will be discussed again later. The purpose of the present chapter, and the estimated relationships reported in it, is to illustrate the usefulness of the production function technique both for understanding the processes of care and for attaining efficiency in the employment of resources.

The production function is a technical relationship between inputs and outputs but differs from the technology in that it presupposes technical efficiency, that is, that the maximum output is obtained from each possible

[1] There have been no previous production function studies in the personal social services area, although one or two studies have the requisite data (e.g., Linn et al, 1977; Challis & Davies, 1980). Health and education production functions, in contrast, have been the subject of much research, the latter being reviewed in a most useful manner by Hanushek

combination of inputs. This presupposition is based on an assumption of optimisation, such as profit maximisation or cost minimisation, the validity of which in a personal social services context has already been discussed in section 7.3.2(d). In the context of old people's homes the concept of a technologically-based production function may not be intuitively appealing, nor may the a priori assumption of technical efficiency ring true. The estimated relationships presented below are therefore interpreted as behavioural rather than technical relationships, and are assumed to reflect the delivery of care services with an "average" degree of technical efficiency.

8.2 The Theory and Uses of the Production Function

If we assume a single output, or a set of multiple outputs reducible to a scalar quantity, the production function is a single-valued function with continuous first- and second-order partial derivatives, defined only for positive input and output values. Using the notation which will be employed throughout this section we may write the function as

$$Q = f(X_1, X_2, \ldots, X_n)$$

where Q denotes output, and the X's denote inputs. In theory, the function f( ) denotes the maximum output attainable from the inputs given the underlying technology. In practice, the technology may not be known (either to the researcher or to the producer), nor may output be maximised from the given input values. These, however, need not invalidate the technique nor its policy uses (cf., Hanushek, 1979, pp.353-4). In this section the characteristics of the production function are described and the uses are set out.

8.2.1 Characteristics and Components

The marginal productivity of an input is the rate of change of output with respect to changes in the input, usually obtained by partial differentiation of the production function. The marginal productivity of input X_i will be written as MP_i. Neoclassical production theory assumes positive and decreasing marginal productivities (inputs contribute to production as they are increased, but do so at a declining rate). These assumptions place constraints on the set of admissible production functions and on other production function properties. The output elasticity of input X_i is defined as the proportionate rate of change of Q with respect to X_i, equal to the ratio of the marginal to the

average productivity of X_i. The <u>average productivity</u> of X_i is simply Q/X_i.
The elasticity of output with respect to a proportional change in <u>all</u>
inputs indicates the existence or otherwise of economies of scale (see below).

Now consider a specific output level, say Q_0. The combinations of
inputs which exactly produce an amount Q_0 trace out the isoquant (or
isoproduct surface or isoproduct curve) for Q_0. There is a separate
isoquant for each output level. In the two input cases the isoquants
can be drawn as convex concentric curves (Figure 8.1). If each isoquant
is a "radical blow-up" of the unit isoquant
(where $Q = 1$) then the production function
is said to be <u>homothetic.</u> Homotheticity
is an important property, having implic-
ations for the estimation and behaviour
of certain parameters of the production
function. This property has already been
encountered in chapter 6 (and was assumed
in order for Figure 6.2 to be drawn).
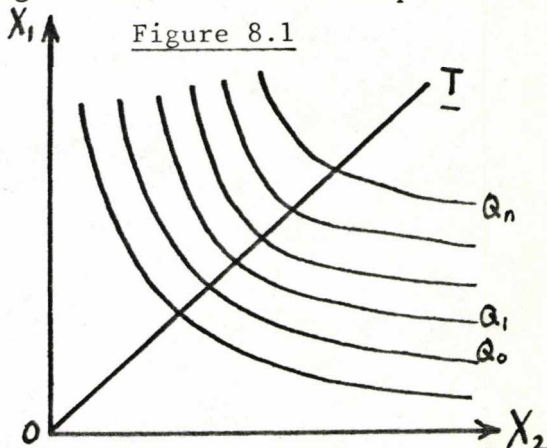
Figure 8.1

A special type of homotheticity serves to define a more specific class of
functions. A production function is homogeneous of degree r if multiplication
of all inputs by the same positive real number h increases output by a multiple
h^r:

$$h^r Q = f(hX_1, hX_2, \ldots, hX_n).$$

The number r denotes the <u>returns to scale</u> parameter; if r is equal to
(greater than/less than) 1, then we have constant (increasing/decreasing)
returns to scale. Returns to scale thus describe the output response to
a proportionate increase in all inputs. Homogeneous production functions,
like their "parent" homothetic functions, have "parallel" isoquants but
these are uniformly arranged. A function homogenuous of degree one
(constant returns to scale) has isoquants for output levels $Q_0, 2Q_0, 3Q_0, \ldots$
exactly equally spaced, whilst for increasing (decreasing) returns to scale
the distances between the isoquants become smaller (greater) as one moves
out from the origin along any ray (such as the line OT in Figure 8.1).
The cost functions estimated in the previous chapter do not correspond to
homogeneous production functions. The isoquants for a homothetic production
function which gives rise to a U-shaped average cost curve will be parallel,
and will get steadily closer together up to the "cost-minimising isoquant",

and will then get further apart. Clearly, we shall not want our estimated
production functions to be restricted to homogeneity.

The marginal rate of substitution (MRS) between two inputs is equal to
the ratio of their marginal products (and is thus necessarily negative),
and measures the rate at which one input can be substituted in production for
another whilst output and all other inputs remain unchanged. It is
generally assumed that the MRS decreases as the quantity of one of the
inputs increases; that is, as one input is increased the reductions made
possible in the other input (for output to be the same) become progressively
smaller. This property is represented diagrammatically by the convexity
of the isoquants in Figure 8.1. The rate of change of the MRS helps
define the elasticity of substitution (ES) which, for inputs X_i and X_j, is
given by

$$ES_{ij} = \frac{\delta \ln(X_i/X_j)}{\delta \ln(\text{MRS})} = \frac{\delta \ln(X_i/X_j)}{\delta \ln(MP_i/MP_j)}$$

where δ denotes partial differentiation and ln denotes (natural) logarithms.
ES thus measures the ease of substitution of X_i for X_j, and is inversely
proportional to the curvature of the isoquants. If ES is zero,
substitution is impossible (inputs are used in fixed proportions), whilst
an infinite value for ES implies frictionless substitition. Equivalently
again, ES can be thought of as an index of the rate at which diminishing
returns set in as one input is increased relative to the others; if ES is
small it is "difficult" to get increased output by increasing just one
input since diminishing returns set in strongly and rapidly. The functional
form for ES_{ij} given above strictly only holds for a two input production
function. With more than two inputs one faces a choice of definition for
the elasticity of substitution between any pair, the choice depending both
on the variables which are held constant in the underlying economic model
(either the level of output, the total cost of production, or the marginal
cost of production) and on the number of variables involved in the
operation (one or two inputs and one or two prices[2]). As Mundlak (1968)
argues, only the elasticity obtained with output held constant is a real

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[2] Prices can be interpreted as shadow prices, given by the marginal products
of inputs divided by the Lagrangean multiplier. This multiplier disappears
when ratios of prices are computed.

generalisation of the two-input elasticity defined above. This still leaves
a number of alternative definitions of elasticity (all of which coincide
in the two input case), the most popular being the Allen-Uzawa Partial
Elasticity and the Direct Partial Elasticity.[3]

8.2.2 The Uses of Estimated Production Functions

The most basic use of
an estimated production function is as a test of the relevance of the
postulated production model, although it is not easy to specify an alternative
model for the purposes of testing. Furthermore, the real test of the
production model is its ability to reflect and predict "real world" care
processes and this requires the careful examination of all its other
properties and characteristics. It is important to notice that an estimated
production function for old people's homes (or for health services or
educational institutions) is probably of more direct relevance for policy
making than an estimated function for, say, manufacturing industries. This
is because manufacturers are probably already aware of the technology of
their production, whereas the social services department or voluntary
organisation probably knows very little about the way in which care inputs
are transformed into care outputs or changes in resident well-being.
The policy potential of an estimated production function in a social services
context is thus more direct (Hanushek, 1979, p.354).

The characteristics of production functions described above are all
of interest to the policy maker. Some of them have previously been

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[3] The Allen-Uzawa elasticity is given by $AUES_{ij} = \dfrac{\sum P_k X_k}{P_j X_j} \cdot \dfrac{\delta X_i \cdot P_j}{\delta p_j \ X_i}$

where summation is over all inputs, $k = 1, 2, \ldots, n$, and where output and
all input prices are held constant. The Direct elasticity is

$$DES_{ij} = \frac{-\delta \ln(X_i/X_j)}{\delta \ln(p_i/p_j)} = \frac{-\delta \ln(X_i/X_j)}{\delta \ln(MP_i/MP_j)}$$

with output and all inputs except X_i and X_j held constant.

encountered in the discussion of the policy uses of estimated cost functions.
For example, from an estimated production function one can compute the
output elasticities of each of the inputs and sum them to measure the
scale elasticity of production.[4] This indicates the presence or absence
of economies of scale which were examined via cost functions in chapter 7.
Our estimated production functions include a capital input (the number of
available places) and thus the estimation of scale elasticity may be
more accurate than that for cost functions, although no financial data
were available for the production function study (Feldstein, 1967, p.90).
The elasticities of output with respect to the inputs can be assumed to
be either constant or variable with respect to, say, home size. These
elasticities provide an indication of the 'importance' of particular
inputs, perhaps with distributional implications in more "macro-models".
Related to these elasticities is the choice of efficient combinations of
inputs, although economic efficiency requires input price data for
computation. The elasticity of substitution provides an indication of how
marginal productivities change as input quantities change and the ease of
substitution of one input for another. Related to the substitutability of
inputs is the concept of separability, which indicates the possibility
of decentralised decision making. Substitutability and separability can
both be examined with the help of estimated production functions.

Empirically-determined production functions have a number of other
uses. If price data is available the cost function can be derived
indirectly from the production function in the manner and with the concom-
itant uses described in the previous chapter. Production function
estimates also feed into manpower forecasts (once output forecasts or
targets have been specified) in determining optimal staffing patterns (see,
for example, Reinhardt, 1975, pp.137-140). Auster et al (1969) employ
an intermediate production function of the kind estimated here as an
intermediate input in their production function for final (health) outputs.
Finally, the function provides indicators of the performance of individual
producing units through the calculation of efficiency or productivity

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[4] This is actually equal to $r = \sum_{i=1}^{n} \frac{\delta Q}{\delta X_i} \cdot \frac{X_i}{Q}$. See, for example, Ringstad (1974).

measures. This efficiency is measured relative to the efficiency of other producers or homes in the sample, using the residuals either from an ordinary ("average") multiple regression equation or from an estimated frontier function. This concept of productive efficiency was discussed in chapter 6 and some estimates will be presented later in this chapter. Only 'average' efficiency indicators are calculated here; for although frontier techniques have been developed and applied recently in the estimation of production frontiers and hence "absolute" efficiency, they could not be applied here because the necessary computer programmes were unavailable and because the data was not fully suitable. Førsund et al (1980) review the range of frontier production functions that have been estimated.[5]

8.3 An Examination of Alternative Functional Forms with 1970 Data[6]

8.3.1 The Data and the Variables

The data for the present study were taken from the information collected on 30th April 1970 in the Census of Residential Accommodation (see DHSS, 1975). The sample of homes used was that described above (see Appendix to chapter 4) and comprised 200 local authority homes for the elderly (or elderly mentally infirm) located in the former County Boroughs of England and Wales. This represented a roughly 20% random sample. These 200 homes were described in the afore-mentioned Appendix; 4 of the homes were omitted from the present analysis because their abnormal size (over 200 beds each) made a nonsense of the weighting procedure used for the computation of output (see below).

Outputs were measured at the intermediate level as "care services rendered to residents". This intermediate conceptualisation measures output by the number of resident-years in each of the four dependency categories (defined in the Appendix to chapter 3), weighted by marginal

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[5] Estimated production functions have further uses in different circumstances, for example, with macroeconomic data, time-series data, or with multiple outputs. See Fuss & McFadden (1978, volumes 1 & 2), especially chapter II.1.

[6] It would have been possible to estimate production functions using the Cheshire and Kent data employed for cost function estimation in chapter 7. These however would still be only intermediate production functions, are second best in that inputs must be measured in cost terms (cf. Lavers & Whynes, 1978, p.85) and thus represent no advance on the 1970 estimates.

cost figures calculated from the estimated cost function presented in section
7.4.2 above. It is thus (strongly) assumed that care services rendered to
residents are homogeneous within dependency categories, and heterogeneous
between categories, and that the heterogeneity is adequately captured by
differences in the costs of care.[7] Output is thus defined as

$$Q_i = MC(H_i)H_i + MC(A_i)A_i + MC(L_i)L_i + MC(M_i)M_i$$

where i denotes homes (i = 1, 2, ..., 196), Q denotes output, H, A, L and
M denote the number of residents in the heavy, appreciable, limited and
minor dependency categories, and MC( ) denotes the marginal cost function.
These marginal cost functions are given by

$$MC(H_i) = 36.54 - 0.029(RW_i) + (9.18 \times 10^{-6})(RW_i^2) + 6744.9/RW_i$$

$$MC(A_i) = 36.54 - 0.029(RW_i) + (9.18 \times 10^{-6})(RW_i^2) + 4848.3/RW_i$$

$$MC(L_i) = 36.54 - 0.029(RW_i) + (9.18 \times 10^{-6})(RW_i^2) + 508.7/RW_i$$

$$MC(M_i) = 36.54 - 0.029(RW_i) + (9.18 \times 10^{-6})(RW_i^2)$$

These are all derived from the estimated cost function for Cheshire reported
earlier. These marginal cost weights follow from basic microeconomic
theory, and particularly the assumption that Q should measure the social
value of residential care services. For a firm operating in a competitive
market the natural weights to choose would be the market prices; in this
non-competitive case we seek shadow prices, and we invoke the very strong
assumption that the ratio of shadow prices is closely approximated by the
ratio of corresponding marginal costs of production. This procedure is
discussed at greater length by Feldstein (1967, especially pp.30-31) and
would have been used by him had he been able to compute marginal cost
estimates for all the case types distinguished in his seminal study of
acute, non-teaching hospitals. As Feldstein wrote, "the relative social
values to society of different cases produced at hospital i may be measured
approximately by the relative marginal costs of those cases elsewhere in
the hospital system" (p.30). Cohen (1967, 1970) argued for the use of
average cost weights on the grounds that relative average costs were "an
important determinant of which services are offered and how much of each".

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[7] Very many other assumptions are implicit here, most of which are discussed
in the text below. One assumption that is not discussed is that
dependency, which is really a continuum, is adequately measured by just
four categories. The data available for this study did not allow any
finer classification.

The theoretical basis for marginal cost weights, however, appears to be sounder and so these are employed here.* The Cheshire sample did not include any homes with anywhere near as many as 200 places, and the marginal cost equations were not valid over such a range, and so the 4 homes in the 1970 Census sample with more than 200 beds were dropped from the analysis.

In the definition of output as the weighted sum of the four dependency counts a number of assumptions have been made. Firstly, only marginal operating costs were available. However, because marginal capital costs are only non-zero in the long term, when capital inputs can be varied, and in the long term will be (virtually) invariant with respect to resident dependency, their omission will not be important.[8] Secondly, I am assuming that marginal accounting costs provide a valid (proportional) approximation to marginal opportunity costs. The validity of this assumption cannot be examined with presently available data but it should be remembered that opportunity costs are to be preferred. The third assumption implicit in the definition of output is that resources and care services are allocated between dependency groups in a way which avoids the systematic deprivation of any group or groups. It is also assumed that resources are allocated efficiently between homes by the local authority. Such assumptions as these are made, if not always stated or recognised, in most studies of resource allocation and planning in all social services. Finally, it is being assumed that the relative costs of residents of different degress of dependency calculated for Cheshire County Council homes for 1973-74 are not very different from those for English and Welsh County Borough homes in 1970. There appear to be no a priori reasons to regard Cheshire as atypical, but it seems likely that relative dependency costs changed between 1970 and 1973-74. Staff costs increased at a faster rate than other operating costs over the period. Thus, in view of the labour-intensity of residential care (in so far as roughly 75% of operating costs were accounted for by expenditure on staff pay, allowances, provisions and laundry) and the positive association between resident dependency and both staffing levels and staff-resident ratios (see chapter 9 for evidence),

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[8] Their omission will in fact exaggerate the relative costs of care of the more dependent residents. This exaggeration will only be slight. If we assume a short run model, the marginal cost functions specified above will, of course, have to be changed in the manner described in section 7.4.2.

* I argued earlier that the estimated relationships are behavioural and that policy-makers know little about underlying production technologies. For these reasons the actual relative marginal costs need not be equal to the (introspective) relative marginal values, but there is no reason to suppose that they are less accurate than relative average costs.

to the supervisory staff numbers. Any distortion will be extremely small, as only 5 of the 196 homes employed any office staff,[10] and Imber had anyway found that supervisory staff mainly carry out the "paper work". The three remaining staff inputs were measured in terms of whole time equivalent staff numbers. The data were insufficiently precise to allow the separate computation of staff numbers and staff hours, as recommended in some production studies (Feldstein, 1967a). Data on the age, marital status, qualifications and experience of staff, which were collected in the Census, were not used in the present study. The staff inputs are denoted S (supervisory staff), C (care staff) and D (domestic staff).

8.3.2 The Estimated Production Functions   There is a vast and expanding body of rather technical literature discussing a vast and expanding number of alternative functional forms for the production function, ranging from the simple linear function to all manner of second order approximations and beyond. Certainly, Messrs. Cobb and Douglas could hardly have foreseen, in 1928, the ends to which economists would willingly go to build more and supposedly better refinements into the specification of the production relationship. For example, Walters' authoritative review of cost and production functions in 1963 covered 66 pages and 345 references, and yet very few of those references would be cited today in a comprehensive compendium of alternative functional forms. The more recent survey volumes by Fuss & McFadden (1978) provide a clear indication of the breadth of the production function literature today. No attempt is made here to survey even one small part of this literature, although it is hoped that the estimates presented below adequately take account of the relevant results.

Historically speaking, up until the pioneering study of Arrow et al (1961), the range of available and estimable functional forms was very limited and certainly did not permit applied economists to fit empirical functions which accorded with their theoretical assumptions about production technologies. Arrow et al introduced the Constant Elasticity of Substitution

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[10] Three homes employed two full-time office staff, one employed one full-time office worker, and the other employed one part-time office worker. Interestingly, the 4 homes excluded from the original sample of 200 all employed office staff. Clearly, large scale homes can afford to employ specialist staff, quite possibly with consequent economies of specialisation.

(CES) production function which had the appealing feature of an arbitrary (but constant) elasticity of substitution between the (two) inputs, thus marking a considerable improvement over and above the Cobb-Douglas, linear and Leontief functions. Immediately a search was made for three and more input generalisations of the CES. It was in fact found that no simple generalisation existed and instead a variety of 'approximate generalisations' vaguely in the spirit of the two-input CES were put forward. Many of these suggested functions exhibited Variable Elasticities of Substitution (VES) properties. Simultaneously the homogeneity assumption came under attack and a number of variable returns to scale functions were thus proposed. The range of VES and variable returns to scale functions is in principle limitless and in practice vast. The decade following the publication of the Arrow et al (1961) paper thus saw a frenetic search for a general production function which allowed for arbitrary and arbitrarily-variable key parameters, which contained all other more restrictive functions as special cases, and which could be conveniently estimated within the existing compass of data limitations and with existing computer facilities. During the 1970s the search has become decidedly less frenetic, principally as a result of the realisation that second-order approximations to a general production function can quite adequately cover the theoretical and empirical requirements of the production relationship. Foremost amongst these second-order approximations are Diewert's (1971) generalised linear and generalised Leontief models, the Transcendental Logarithmic (Translog) functions of Christensen, Jorgensen and Lau (1973), and the general quadratic function of Sargan (1971). These second-order approximations hold much promise for the future, although their flexibility may be a disadvantage if the number of inputs is large (Hanoch, 1975). These flexible functional forms can all be seen as linear-in-parameters expansions which approximate some arbitary underlying production function. However, their accuracy has recently been called into question (Fuss et al, 1978, pp.232-6), and it might now be better to devote one's energies, given suitable computing facilities, to the estimation of non-linear functions directly. The functions estimated here are all linear-in-parameters, and are thus subject to the criticisms of Fuss et al (1978) and others. Non-linear methods were, however, way beyond the computational skill of the author.

With this vast number of alternative functional forms arranged in

front of the researcher a number of criteria have to be adopted to impose
some semblence of order upon them. The criteria adopted in the present
study were computational feasibility (hence the first restriction that
only linear-in-parameters functions were estimated) and congruence with
certain assumptions or maintained hypotheses about the production of
care services in old people's homes. Among these maintained hypotheses
were, for example, the non-negativity of marginal products, the possibility
of both economies and diseconomies of scale, the possibility of variable
elasticities of substitution, and so on. Quite clearly, therefore, there
is a "need for general, flexibly functional forms, embodying few maintained
hypotheses, to be used in tests of the fundamental hypotheses of production
theory" (Fuss et al, 1978, p.223). Having examined the congruence
between a specific functional form and one's maintained hypotheses and
found it to be satisfactory, the choice between alternative functional
forms (all with this property) must rest on the conventional econometric
criteria of parametric parsimony (too many parameters raise the likelihood
of severe multicollinearity and reduce the number of degrees of freedom),
interpretability, computational ease, and within-sample ("interpolative")
robustness (or "goodness-of-fit").

One further preliminary point must be considered, and that concerns the
endogeneity or exogeneity of the inputs. Ever since Marschak & Andrews
(1944), economists have been concerned to examine the possibility of
simultaneity bias affecting the estimated parameters. If, for example, the
input values are determined by the producer as part of the productive
decision making process, then these inputs will not be independent of the
residual terms in the production function (which, after all, partly reflect
technical efficiency[11]) and simultaneity bias will result. Endogenous
inputs mean that we should be estimating our production function, not by
ordinary least squares, but by two stage least squares (2SLS) or, more
generally but no more efficiently, by instrumental variable methods. But
the argument can not end there, for many economists have argued that even

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[11] Variations in economic or price efficiency, and in entrepreneurial
ability, on the other hand, introduce errors into the first order
conditions (the marginal productivity or derived demand relationships).
See, for example, Marschak & Andrews (1944) or any intermediate applied
econometrics textbook.

if inputs <u>are</u> endogenous, the resultant bias and inconsistency in the parameter estimates will be far from serious.

There are four sources of endogeneity of the inputs: production units may differ in their long period production functions, they may differ in the prices they must pay for inputs, they may not have optimally adjusted to their least-cost levels of input usage, and - as mentioned earlier - input levels may not be independent of technical efficiency and hence of the residuals.[12]   These sources of endogeneity are well discussed by Sargan (1971). However, the important question concerns the <u>size</u> of the problem and thus the likely extent of the bias. A great many economists subscribe to the belief that the simultaneity bias will be small if producing units in a cross-section sample face widely differing product and factor prices (or shadow prices) and if they differ markedly in their choices of inputs (see, for example, Hoch, 1958; Konijn, 1959; Griliches, 1963; Walters, 1963; Reinhardt, 1972; Reinhardt, 1975, pp.129-136). Reinhardt, for example, found simultaneous equation estimates to be far less plausible than ordinary least squares estimates, and quoted Walters' observation that it would be "dangerous to be pedantic about the superiority of simultaneous equations over single equation methods". My own conclusion in the old people's homes' context is that the conditions for endogenous determination of the staffing levels would appear to be satisfied - it seems unlikely that homes will have adjusted optimally to least-cost employment levels, there will almost certainly be elements of both technical and economic inefficiency, and there will be other, price-induced, differences in employment levels. However, the arguments in the literature lead me to believe that ordinary least squares (OLS) methods may be acceptable and this accounts for my emphasis on OLS rather than 2SLS techniques below. The 2SLS method was used in addition to OLS in most cases, but is not reported for most equations.[13]   All

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[12] Walters (1963) argues that if variations in technical efficiency are the <u>only</u> source of the differences between productive units, then single equation methods will not be biased at all.

[13] Notice that the endogeneity of the staff inputs is exploited in the next chapter, where staffing levels and staff-resident ratios are taken as the dependent variables in the estimated relationships. Note also that the estimated equations reported in the next chapter were <u>not</u> used to generate the 2SLS estimates in this chapter. This is because only a subsample of the 196 homes studied here were examined in chapter 9, for the reasons given at that juncture.

equations reported below were estimated by OLS unless stated to the contrary.

The alternative functions estimated and reported below comprise but a subset of the functions that <u>could</u> have been estimated given the data and computer routines that were readily available, and a quite small subset of the functions that <u>should</u> have been estimated had there been available some of the very interesting new programmes for nonlinear estimation and some additional variables on residential homes. The importance of estimating a large number of alternative functions can easily be exaggerated, however, for econometricians have still yet to devise fully adequate (and usable) testing procedures to distinguish between these alternatives, and over a limited range of variation these alternatives will anyway perform much the same. Only over broader ranges of variation will functional form assume the importance often accorded it in textbook treatments of production function estimation, as argued earlier. It <u>is</u> important, however, not to be naive in estimation and to be sure that the functional form that is finally selected accords with one's beliefs about the technology (or the behavioural patterns) it purports to reflect.

(a) <u>Linear production functions</u>. The straightforward linear additive function is the simplest to understand and the easiest to estimate. Using the notation introduced earlier (S = w.t.e. supervisory staff; C = w.t.e. care staff; D = w.t.e. domestic staff; N = no. of available places; Q = output of "care services") the equation was:

$$Q = -2379.9 + 330.1(S) + 6.3(C) + 34.3(D) + 62.4(N) \quad (R^2 = .605)$$
$$(10.12) \quad (3.27) \quad (0.24) \quad (1.17) \quad (6.88)$$

The figures in parentheses below the estimated coefficients are the estimated t-statistics whose critical values are 1.645 (10% significance), 1.960 (5%), 2.326 (2%) and 2.576 (1%). The 2SLS counterpart to this equation was very unsatisfactory. The simple linear function has many drawbacks: all marginal products and marginal rates of substitution are constant, elasticities of substitution[14] are infinite (the function thus

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[14] Unless stated to the contrary, when "elasticity of substitution" is mentioned or quoted I mean the <u>direct</u> elasticity, with output and all other inputs held constant, as discussed in section 8.2.1 above.

assumes inputs can be freely substituted one for another with output
unchanged), all inputs are non-essential (S, C, D or N could be zero
without output becoming zero), and returns to scale are strictly constant.
No cost function exists which is a dual to this linear production function.
For these reasons alone the simple linear function is wholly inappropriate
in the old people's home context. A number of other simple linear
functions were estimated, some excluding N or other inputs, some including
design features of the home, but none of them represented a statistical
improvement over the equation above and of course all of them have the
same implausible enforced characteristics.

(b) Generalised linear production functions. A generalisation to
the simple linear function was suggested by Diewert (1971) and refined by
Lau (1974). In principle the function has the form

$$Q = \sum_i \sum_j a_{ij} X_i^{\frac{1}{2}} X_j^{\frac{1}{2}}$$

with both i and j ranging from 1 to n. If a_{ij} = 0 for all i$\neq$j then this
function reduces to the simple linear function. It is assumed that
$a_{ij} = a_{ji}$ and that all the $a_{ij} \geq$ 0. These assumptions are necessary
to ensure the function conforms with prior maintained hypotheses about
production relations. The estimated forms of the function did not
unfortunately conform to these assumptions, with many of the coefficients
being significantly negative. Furthermore, this generalised linear
function can only imply constant returns to scale, although it can be
transformed by some continuous, monotonically increasing function which
tends to infinity and passes through the origin to give any degree of
returns to scale. This degree is nevertheless fixed throughout the
output range, and so the function hardly accords either with our prior
conceptions about the production of care services in old people's homes
or with the results presented in chapter 7. The generalised linear function
has a great many advantages over its simple linear counterpart but it
cannot match the variability that is observed in our particular context,
and it does not perform well. The generalised function for the four inputs
included in the simple linear function had an R^2 (= 0.615) which barely
indicated any improvement in fit (or "interpolative robustness"), and
estimates of marginal products and marginal rates of substitution were
implausible.

(c) Cobb-Douglas production functions. The Cobb-Douglas or multi-
plicative function combines simplicity and a (suspiciously) good track
record, and is used probably more frequently than any other functional form.
This popularity remains despite the restrictive assumptions of the function.
The function is estimated in linear form after transformation by
logarithms. Three Cobb-Douglas functions are worth reporting; the first
includes only staff inputs and fits the data reasonably well:

$$\ln Q = 4.726 + 0.344(\ln S) + 0.427(\ln C) + 0.499(\ln D) \qquad (R^2 = .579)$$
$$\quad\ (38.5) \quad (3.78) \qquad (8.39) \qquad (6.43)$$

Adding a term in $\ln N$ improves the fit considerably but leaves the staffing
variables statistically insignificant:

$$\ln Q = 1.084 + 0.082(\ln S) + 0.038(\ln C) - 0.029(\ln D) + 1.505(\ln N)$$
$$\quad\ (4.01) \quad (1.23) \qquad (0.34) \qquad (0.49) \qquad (14.20) \quad (R^2 = .796)$$

Finally, a dummy variable taking the value 1 for purpose-built homes
(PURP) and 0 otherwise, and another taking the value 1 for homes converted
from private residences (PRIV) and 0 otherwise were included in simple
additive form in the logarithmically transformed equation:

$$\ln Q = 1.619 + 0.059(\ln S) + 0.047(\ln C) + 0.008(\ln D) + 1.412(\ln N) -$$
$$\quad\ (4.76) \quad (0.90) \qquad (1.07) \qquad (0.13) \qquad (12.61)$$

$$-0.290(PURP) - 0.297(PRIV) \qquad (R^2 = 0.806)$$
$$\quad\ (3.04) \qquad\ (2.88)$$

It is important to notice that the Cobb-Douglas production function assumes
all inputs to be essential: if any one of S, C, D or N takes the value
zero then the level of output must be zero. This is clearly at variance
with caring processes as observed in old people's homes: the availability
of places (N) is clearly essential, but S, C and D are only collectively
essential. This may account for the dominant influence of N in the last
two Cobb-Douglas functions. The scale elasticity for the Cobb-Douglas
function is obtained by summing the coefficients on the inputs (or the
exponents in the multiplicative form). These were found to be 1.22, 1.60
and 1.53 respectively which are all plausible, although the fact that the
elasticity of scale must remain constant throughout is an unwarranted
restriction. The marginal rates of substitution, evaluated at the
arithmetic means of the inputs, proved to be rather less reliable (one
of them being in excess of 33!) and fluctuated wildly between the equations.

The coefficient of $\ln N$ exceeds 1, counter to neoclassical assumptions about
diminishing marginal productivity. A further Cobb-Douglas function is

worthy of mention. Defining the total number of staff as J = S+C+D, the
estimated function was:

$$lnQ = 6.535 + 0.099(lnJ) + 1.458(lnN) \qquad (R^2 = 0.794)$$
$$\quad\;\; (267.8) \quad (1.03) \qquad (13.14)$$

The essentiality assumption would seem to be valid for J, although once
again the t-statistic on the staff variable is not significant. It is
possible to test for the applicability of the aggregation of the staff
variables by testing the linear restrictions that the coefficients on
S,C and D in the second of the reported Cobb-Douglas functions are equal.
Proceeding in the conventional manner, the F-statistic was found to be
0.65 which is sufficiently small for acceptance of the null hypothesis
that the restrictions are valid. In other words, under the assumption
that a Cobb-Douglas technology is valid, an aggregated staff input is
preferred to disaggregated inputs. However, it is not clear that the
Cobb-Douglas technology is wholly appropriate for our purposes.

(d) Constant elasticity of substitution production functions. The
CES function was first proposed by Arrow et al (1961) as an alternative
to the restrictive linear, Cobb-Douglas and Leontief functions.[15] Like
these other functions, the CES assumes a single (constant) value for the
elasticity of substitution between inputs, for all output and input
values, but that constant elasticity can differ between productive
emterprises, processes and time periods. In the other functions just
mentioned the elasticity remains fixed in all studies, at the value of
infinity (linear function), zero (Leontief) or one (Cobb-Douglas). The
two input CES function is easy to specify and, under certain assumptions,
to estimate. Assuming for the moment only the two inputs N and J
(= S+C+D) the functions would be

$$Q = \gamma(\delta N^{-\rho}+(1-\delta)J^{-\rho})^{-\nu/\rho}$$

where γ, δ, ν and ρ are constants related in a simple way to the production
parameters of interest. The function is homogeneous of degree ν, so
that ν indicates the returns to scale property; γ is an efficiency
parameter; δ is the distribution parameter, indicating the input-intensity

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[15] The Leontief production function is $Q = minimum\ (a_1X_1; a_2X_2; \ldots; a_nX_n)$
under the assumption that one input acts as a constraint such that, given
the total availability and average productivity of that input, output is
determined.

of production; and ρ is the substitution parameter, with the elasticity of substitution being equal to $(1+\rho)^{-1}$. To estimate this two input CES function is not altogether straightforward, for the procedures suggested by Arrow et al require data on input and output prices. Other "direct" methods of estimation were suggested by Feldstein (1967b) and Bodkin & Klein (1967), both requiring iterative or search procedures and a lot of computer time. At the same time, however, Kmenta (1967) suggested an approximation to the CES, obtained as a Taylor Series expansion around $\rho = 0$, which allowed regression estimation in the normal manner. This approximation was in fact a special case of the logquadratic or translog function which is encountered below. The estimable approximation has the form

$$\ln Q = a_o + a_1 \ln N + a_2 \ln J + a_3 (\ln N - \ln J)^2$$

with the parameters $a_o \ldots a_3$ being simple linear functions of the original parameters γ, δ, ν and ρ. The CES function can be seen as a generalisation of the Cobb-Douglas function, although testing whether a_3 is zero is not an adequate test of the usefulness of the CES, only a test of the usefulness of some second order approximation (McCarthy, 1967; Griliches & Ringstad, 1971). There are other difficulties with this method of estimation, widely discussed in the textbooks, all of which stem from the fact that the Kmenta approximation _is_ only an approximation. A further difficulty is that the estimates of δ and ρ are not independent of the units of measurement of the inputs, and so the procedure used here is to deflate the inputs by their geometric means (see Sargan, 1971). The OLS estimate of the Kmenta approximation to the CES gives:

$$\ln Q = 6.521 + 0.138(\ln J) + 1.430(\ln N) + 0.202(\ln N - \ln J)^2 \quad (R^2 = .796)$$
$$(243.5) \quad (1.37) \qquad (12.65) \qquad (1.19)$$

which turns out to have the unfortunate property of a negative elasticity of substitution (equal to -0.452). This is probably due to the rather atypical nature of place-staff substitution in practice, the fact that by aggregating staff into J we are throwing the baby - substitution possibilities between staff types - out with the bath water, and the fact that the validity of the approximation is reduced the further the under-lying elasticity of substitution is from unity. Note in passing that this estimated equation does not represent a significant improvement over the two input Cobb-Douglas function reported in (c) above (F(1,193)=1.41), and so the generalisation to an arbitrary (though constant) elasticity of

substitution appears not to be warranted.

(e) Extensions to the CES production function. The CES function
as presented by Arrow et al (1961) combined simplicity, empirical
tractability and reasonable generality but was clearly limited in that
it made provision for but two inputs. A number of generalisations of
this two input function have thus been suggested, extending the CES to
more than two inputs, allowing variable returns to scale, and allowing
variable elasticities of substitution. The generalisation of the CES
to more than two inputs proved to be difficult. Uzawa (1962) and McFadden
(1963) proved that it was not possible to obtain a functional form which
had an arbitrary set of constant elasticities of substitution for more
than two inputs, for all definitions of elasticity. Uzawa thus proposed
a function with restricted range elasticities, but this has not proved
popular. Mukerji (1963) suggested an alternative generalisation which
aroused more interest; this had n substitution parameters in addition to
the 'global' parameter ρ. These elsticities were not constant but did
stand in fixed relationship to each other such that their ratios were
constant. Hanoch (1971) and Sargan (1971) both suggested generalisations
of the Mukerji function, but these, like the original Mukerji generalisation,
cannot be transformed simply in a way which renders them directly
estimable by linear regression techniques. Instead, side relations
requiring price data must be estimated or non-linear optimisation
routines must be employed (cf. Mizon, 1977). Estimation also proves
a problem with the two-level and three-level CES generalisations put
forward by Sato (1967) which is a pity given that these generalised
functions contain the Mukerji, Uzawa, McFadden, CES and Cobb-Douglas
functions as special cases. The most general of the straightforward CES
generalisations, proposed by Sato (1975) are even more complicated and
appear not to be fitted to actual data.

(f) Variable returns to scale production functions. Variable returns
to scale (VRTS) functions have only attracted more than cursory attention
in fairly recent years, a surprising feature in a profession which has
long extolled the virtues of U-shaped average cost curves in its textbooks.
The AC curves drawn in Figure 8.2 have different properties: curve 1
corresponds to a homogeneous production function with scale elasticity
greater than one (increasing returns to scale); curve 2 is homogeneous
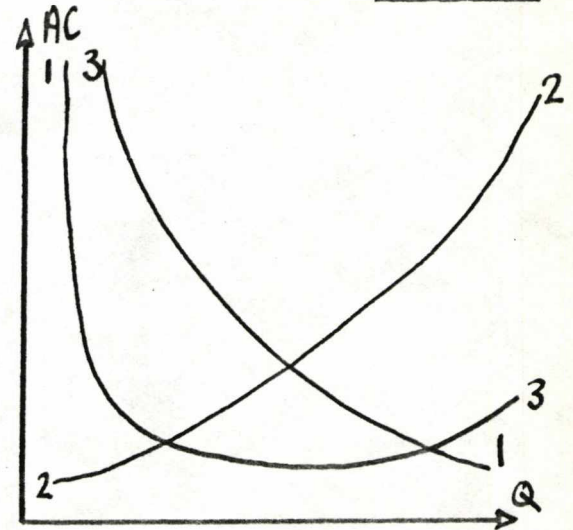
with scale elasticity less than one; and curve 3 is an inhomogeneous function with scale elasticity ranging from values above one (for low output) to values below one (for large output). VRTS functions attempt to allow for the productive or cost behaviour exhibited by curve 3. The first major step towards (arbitrary) VRTS functions came when Zellner & Revankar (1969); showed how to generate a class of homothetic functions from a set of

Figure 8.2

homogeneous functions by simple transformation.[16] All other functional properties are unchanged. The great advantage of homothetic functions for specifying VRTS is that the resultant scale elasticity is constant along any isoquant, invariant with respect to factor ratios, and only varies _across_ isoquants. A useful review of Zellner-Revankar transformations is given by Guilky & Lovell (1975) and a good example of their use is the study by Førsund & Jansen (1977). Most applications of the method adopt just one or perhaps two alternative transformations. The non-linearity of the optimisation procedure for the more interesting transformations (with more than one transformation parameter) means a sharp increase in the computational burden as the number of production parameters to be estimated increases. All transformed equations, whatever the complexity of the transformation function itself, require computer-based optimisation routines and none were attempted in the present study. Two other VRTS procedures are the fitting of a number of continuous piecewise fixed returns to scale functions (Poirier, 1975) and the estimation of log-quadratic and other second order approximation functions, which are discussed below.

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[16] The example used by Zellner & Revankar (1969) themselves is to take a simple Cobb-Douglas function, say $Q = cA^a B^b$, and then transform output to obtain $Q^* = Qexp(tQ)$, for some constant $t > -1/Q$. The estimated function is thus $Qexp(tQ) = cA^a B^b$. This they estimated by taking natural logarithms, adding an error term, and applying maximum likelihood methods using a search procedure over the transformation parameter.t. Førsund & Jansen (1977) estimated the same functional form indirectly via the dual cost function. Actually, Nerlove (1963) explicitly, and Soskice (1968) implicitly, suggested transformations of output before Zellner & Revankar, but their suggestions were not couched in such a general framework.

(g) Variable elasticity of substitution production functions.
Variable elasticity of substitution (VES) functions allow the elasticities
of substitution of the various pairs of inputs to vary either along
or across isoquants, or both. It should be noted that VES and VRTS
functions are often one and the same thing so that there is some overlap
in the discussion here. One of the earliest VES functions, although not
known by that name, was the transcendental function of Halter, Carter &
Hocking (1957) which tacked an exponential element onto the Cobb-Douglas
form. Taking logarithms yields a linear -in-parameters equation
estimable in the usual way. For example, with inputs S,C,D and N all
assumed to be essential for production, the estimated equation has the
form:

$$\ln Q = 5.949 + 0.116(\ln S) - 0.075(\ln C) - 0.66(\ln D) - 0.074(S) +$$
$$\quad\;\;\; (16.0) \quad\; (0.98) \qquad\quad (1.60) \qquad\quad (3.69) \qquad\quad (1.30)$$

$$0.024(C) + 0.063(D) - 0.274(\ln N) + 0.042(N) \qquad (R^2 = .937)$$
$$(2.67) \qquad (5.73) \qquad (1.84) \qquad\quad (11.02)$$

The equivalent form estimated by two stage least squares had coefficients
with identical signs, and generally the staff variables appeared more
significant and N less significant than in the OLS equation reported here.
The fit is very good, and certainly a marked improvement over the equivalent
Cobb-Douglas function. Unfortunately, the neoclassifcal assumption of
positive marginal products is violated wherever $S \geq 1.568$, or $C \leq 3.125$,
or $D \leq 4.222$, or $N \leq 6.524$. These conditions hold for far too many
homes for us to have much confidence in this function, given that I am
accepting the validity of the positive marginal product assumption for
most if not all of the output range. Three of the marginal rates of
substitution were negative when evaluated at their arithmetic and geometric
means, and this too is not very plausible. Other forms of the (strict)
Halter transcendental function were estimated but none of them performed
any better than that reported above. However, it is not necessary
to restrict ourselves in this way and we can instead look at a more
general class of transcendental functions where some function G( ) is
used multiplicatively to give, say,

$$Q = a_o X_1^{a_1} X_2^{a_2} \exp G(X_1 X_2)$$

Given a specific form for G ( ) we can again take logarithms and in many

cases estimate in the usual way.[17] Particularly interesting work along
these lines was conducted by Reinhardt (1972, 1975), whose distinction
between essential and non-essential inputs we have already discussed
in this chapter. For example, we might feel that inputs S and N are
essential, whilst C and D are non-essential, so that zero values of C
and D will not render Q zero. The range of possible transcendental
functions which include only essential inputs multiplicatively but non-
essential (and perhaps also essential) inputs in the exponent is large
indeed. If the function G ( ) is allowed to be nonlinear in the inputs
then both increasing and decreasing marginal products are possible.
Partial elasticities of substitution will vary, although often in
algebraically complex ways. A general form for these transcendental
functions with essential and non-essential inputs is

$$Q = a_0 \prod_{j=1}^{m} X_j^{a_j} \exp(\sum_{i=1}^{n} b_i Z_i + G(X,Z,W))$$

where the X_j are the essential inputs, the Z_i are the non-essential
inputs, and W denotes a vector of "other influences". The form of G ( )
determines the interactions between inputs and the general properties
of the function. Again I assume staff to be collectively essential (hence
J = S+C+D is an essential input) but individually non-essential. N
is also assumed essential for production. A very large number of alternative
specifications of this function was estimated and it is unnecessary to
report the full details.[18] However, table 8.1 summarises these estimated
equations by indicating inclusion/exclusion of variables, significance
of individual coefficients and overall fit. It is quite unnecessary to
go through these equations. The pattern of inclusion indicates the
range of alternative functions which were estimated, and the significance
of individual coefficients can be seen to be consistently high for some
variables, consistently low for others, and widely fluctuating for many

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[17] Ferguson (1965) and Lovell (1968) suggest an alternative transcendental
function: choose a particular expression for the marginal rate of
substitution (from the presumed or "known" shape of the isoquants) and
derive the production function which corresponds to it. See also Kadiyala
(1972), Lovell (1973) and Färe & Jansson (1975). Generalisations to more
than two inputs are hard to make with this particular trasncendental
function approach.

[18] In actual fact, very many more variations on the transcendental theme
were examined, but only those which assume individual staff variables
to be non-essential are reported here.

more. These fluctuations are not surprising given the collinearity of
the regressors in most equations. The R^2 coefficients are extremely
high throughout, even for the very simple functions. All of these
reported equations have the general form

$$Q = a_o N^{a_1} J^{a_2} \exp(G(N,S,C,D,PURP,PRIV))$$

where G is a linear-in-parameters function of the variables whose
inclusion is indicated in the columns headed S to PR.

Figure 8.3. is a schematic representation of the links between equations,
where the notation T1 to T28 denotes the estimated equations listed in
table 8.1, where the arrows indicate the direction of increased
geneality (hence T46 is more general than T45 since it does not impose
the prior zero restriction - i.e., exclusion - on the parameters for the
variables SC, SD and CN in the exponent), and where the numbers on
the arrows indicate F-statistic values. This statistic is defined in

$$F = \frac{\underline{u}'\underline{u}-\underline{v}'\underline{v}}{\underline{v}'\underline{v}} \cdot \frac{196-k}{r} = \frac{R_v^2 - R_u^2}{1-R_v^2} \cdot \frac{196-k}{r} \quad \sim F(r,196-k)$$

where $\underline{u}'\underline{u}$ and $\underline{v}'\underline{v}$ are the residual sums of squares from the restricted
and unrestricted (i.e., the more and less restricted) regressions
respectively, k is the number of regressors in the unrestricted equation,
and r is the number of additional restrictions imposed by moving to
the more restricted equation. R_u^2 and R_v^2 are the usual goodness-of-fit
coefficients for the restricted and unrestricted regressions. The sample
size is 196 homes. Asterisked F statistic values are significant at
the 5% level (*) or at the 1% level (**). We can start with any equation
and then trace through to more or less restrictive equations as the F-test
suggests. If the computed F-statistic is significant in relation to one's
predetermined critical level then the move should be made in the direction
indicated by the arrow. This, of course, assumes that only overall fit
is relevant, which is not our working assumption, but is nevertheless a
useful indicator of possibly preferred functional forms. Marginal
product expressions were examined for most of the apparently interesting
forms and this helped, through the process of elimination, to move
towards a "best" production function in this particular class of functions.
We might also wish to reject equations with "too many" nonsignificant
estimated coefficients, although this will partly be indicated by the
F-tests.

Table 8.1 Estimated Transcendental Functions with Essential and Non-Essential Inputs

Fit   Significance of Regression Coefficients for:

R^2	k	lnN	lnJ	S	C	D	N	S^2	C^2	D^2	N^2	SC	SD	CD	SN	CN	DN	JN	Pu	Pr	Eqn.No.	Group
.938	99	95	99	-	99	99	99												98	-	T1	
.940	99	99	-	-	-	-	99					-	90	95					98	-	T2	
.956	99	-	90	-	99	-	-					-	99	-	99	-	99		99	99	T3	
.973	99	99	-	-	-	-	99	99	-	98	99	95	99	90	99	95	99		99	90	T4	I
.937	99	95	99		99	99	99												95	-	T5	
.939	99	95	-		-	-	99					-	-	95					-	-	T6	
.940	99	-	-		-	-	98					-	-	-				-	99	-	T7	
.960	99	99	-			-	99	-	-	90	99	90	99	99				99			T8	
.960	99	99	-	-	-	-	99	-	99	90	99	90	95	99				99	-	-	T9	
.964	99	99	-	-	-	95	99				99	99	99	-	99	98	99				T10	
.966	99	99	-	-	-	99	99				99	99	99	-	99	99	99		99	95	T11	II
.967	99	99	-	-	-	-	99			99	99	95	99	90	99	99	99		95	-	T12	
.967	99	99	-	-	-	-	99	90		99	99	95	99	95	99	99	99		95	-	T13	
.943	99	-	95		99	-	99								-	-	99		98	-	T14	
.944	99	-	95	-	99	-	99								-	-	99		98	-	T15	
.948	99	-	99	99	99	-	95	99		90					95	-	99		95	-	T16	
.956	99	90	-	99	90	-	99	99	-	99					-	99	99		98	-	T17	
.937	99	99	-	-		99	99					99			-	90	99		99	98	T18	III
.964	99	99	-	-		99	99					99			-	90	99		98	95	T19	
.966	99	99	-	-	-	90	99	-			99	99			-	95	99		-	-	T20	
.968	90	99	-	-	-	95	99	-	98	99	99				-	-	99		90	-	T21	
.969	99	99	-	99	-	-	99	-	-	99	99			99	-	-	99		-	-	T22	
.956	99	99	99	98	99	99	99					99							99	99	T23	
.958	99	99	-	90	-	-	99					99	99						99	99	T24	
.956	99	99	-	-	-	99	99					99		98		95	99		99	99	T25	IV
.969	99	99	-	-	-	-	99					99		99		99	99		99	99	T26	
.969	99	99	-	-	-	-	99					99	-	99		99	99		99	99	T27	
.969	99	99	-	-	-	-	99					99	-	-	95	-	99		99	99	T28	

Key: Signifcance denoted as either 90%, 95 %, 98% or 99%. "-" indicates variable was included but coefficient did not attain 90% significance. Blank cell indicates variable was not included. Pu = Purpose built dummy; Pr = former private residence dummy; k = intercept term.

Figure 8.3

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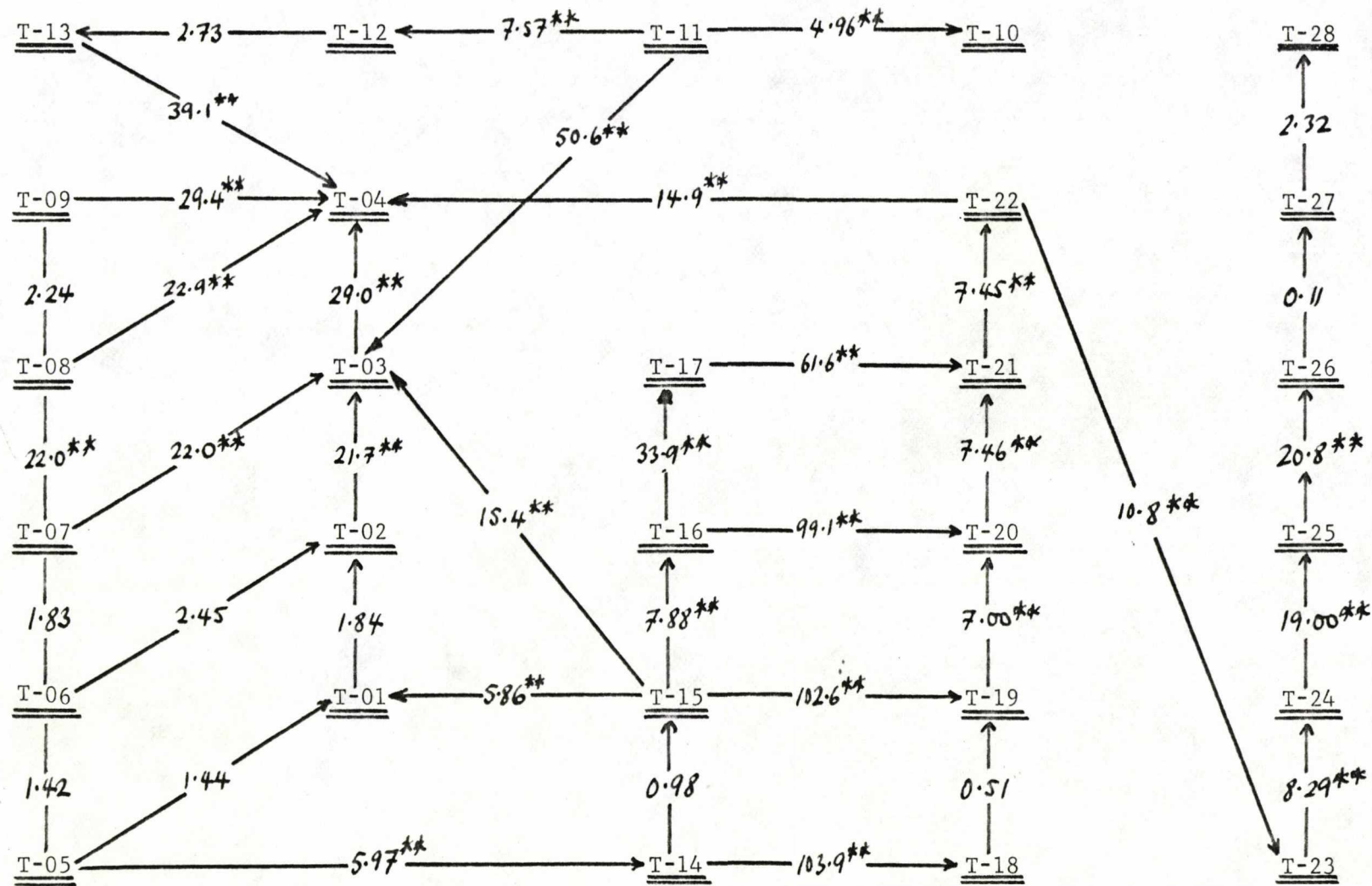
The estimated functions may be grouped loosely as follows. Equations
T1 to T7 were the first round estimates, with T4 being suggested by
Figure 8.3 but having negative marginal productivities for S when
evaluated at both the arithmetic and geometric means. Comparing T1 with
T2, and T5 with T6, suggests that the introduction of the SC, CD and SD
 regressors has the effect of reducing both the coefficient and t-statistic
of lnJ. Given that we want to retain J (aggregate staff level) as an
essential input to residential care, the third round functions (T14 to
T22) drop SC, CD and SD to allow lnJ to run its full course. Of these
 third round functions, T22 appears to fit the observations best, but
again the marginal product of supervisory staff is negative at both
arithmetic and geometric means. The second round of estimation (T8 to T13)
did not produce any particularly useful equations, with the preferred
function on the criteria assumed by Figure 8.3 being T12 which had
very low t-values for lnJ and S. The fourth and final round (T23 to
T28) attempted to reduce the multicollinearity among the regressors
(which may have been the cause of the negative marginal products) by
removing all variables which were both non-essential and statistically
of dubious importance in earlier rounds. These six equations are nested
in a very simple way and the F-test criterion would suggest examining T26.
In fact, the marginal products were not entirely satisfactory, and it was
apparent that a term was needed to capture the substitutability or
complementarity of supervisory and care staff. Equation T27 thus adds
the SC variable which, whilst raising the R^2 by a mere 0.00002, does
generate rather more satisfactory productive properties. The OLS
estimates of T27, which form the basis for the results reported in table
8.1, are detailed in table 8.2, together with the corresponding 2SLS
estimates. The set of exogenous variables used for 2SLS estimation
comprises the design variables detailed in the Appendix to Chapter 4,
including dummies for purpose-built, private residences, former PAIs,
etc.

The marginal product relations for T27 are:

$MP(S) = .021(Q) - .001(CQ) - .207(Q/J)$

$MP(C) = .032(Q) - .001(SQ) - .005(DQ) + .001(NQ) - .207(Q/J)$

$MP(D) = -.023(Q) - .009(DQ) - .005(CQ) + .004(NQ) - .207(Q/J)$

$MP(N) = .095(Q) - .001(NQ) + .001(CQ) + .004(DQ) - 1.35(Q/N)$

Table 8.2:   OLS and 2SLS Estimates of Preferred Production Function

Variable	OLS Estimation		2SLS Estimation	
	Coefficient	t-statistic	Coefficient	t-statistic
Constant	8.29	14.1	6.85	11.0
lnN	-1.35	4.43	-1.30	3.23
lnJ	-.207	1.29	.823	2.45
S	.021	0.81	.200	2.66
C	.032	1.43	-.162	2.65
D	-.023	1.11	-.304	5.42
N_2	.095	6.12	.130	5.50
D^2	-.005	4.26	.006	1.22
N^2	-.001	6.97	-.002	7.61
SC	-.001	0.34	-.042	5.99
CD	-.005	3.69	-.010	1.15
CN	.001	2.65	.007	5.54
DN	.004	7.70	.007	2.94
PURP	.133	3.24	.011	0.18
PRIV	.100	2.71	-.010	0.17

Evaluating these marginal products at the geometric (or arithmetic) means gives MP(S) = 2.272 (or 4.074 at arithmetic mean), MP(C) = 9.310 (or 13.758), MP(D) = 5.791 (or 6.526), and MP(N) = 26.897 (or 44.863). Concentrating on these mean values we also see that the marginal rates of substitution are quite plausible: at geometric means they are -4.10 (between S and C), -2.55 (S and D), -0.62 (C and D), -11.8 (S and N), -2.89 (C and N), and -4.64 (D and N). At these geometric means the scale elasticity takes the value 1.53, implying economies of scale at this level of operation. The marginal products and the scale elasticity were computed for each home in the sample, and this showed that MP(S) was positive for all homes, that MP(C), MP(D) and MP(N) took (small) negative values for 38, 4 and 5 homes respectively, and that the scale elasticity was everywhere positive. The homes with negative marginal products were examined more closely: a few of those with negative MP(C) had no care staff (remember the function   is an "average" or expected relationship) and hence the problem did not arise, and most of the rest were small homes (many with 10-12 places) converted from former private residences. I also examined the marginal products for each home using the 2SLS estimates, and found that MP(S) was negative for most homes and negative at the arithmetic mean. MP(N) was negative for all homes. The 2SLS estimates are thus not used for further study with this particular functional form, although it should be emphasised that the problem is a function of the exogenous variables available as instruments for the 2SLS procedure, rather than the 2SLS procedure per se.

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Other VES production functions have been suggested, but were not estimated with the present data set. Like Halter et al and Reinhardt, Bruno (1968) also suggested a VES generalisation of the basic Cobb-Douglas function, which was termed the constant marginal shares function. Bruno's function can only be estimated directly by non-linear methods. An alternative starting point to the Cobb-Douglas core, is a simple CES core, and VES extensions of this kind have been suggested by, among others, Bruno (1962), Revankar (1971), Lu & Fletcher (1968), Sato (1967) and Kadiyala (1972). Other functions discussed in (e) above may also display VES properties. Bruno's suggested VES extension of the CES has an elasticity which is difficult both to estimate and interpret and has attracted little attention. Revankar's suggestion, on the other hand, has attracted both empirical and theoretical attention. The elasticity of substitution in Revankar's function varies monotonically with the input ratio, approaching unity from above or below. The ease of estimation of this function only holds when input price data is available, and so does not apply here. The VES models of Sato (1967) and Lu & Fletcher (1968) are both generalisations of Revankar's class of functions, although chronologically prior to it. Unfortunately these functions are not easily generalised to more than two inputs, and are not linear-in-parameters. They are thus difficult to estimate with non-linear optimisation routines. The functions of Kadiyala (1972) and Sato (1975) are more general still, but again are not easy to estimate. Finally, mention should be made of Clemhout's (1968) homothetic isoquant production function which again contains many of the other functional forms as special cases. This function can be simplified for the purposes of estimation but this was not done here.

(h) Second-order approximations to a general production function. The advent of second-order approximations to a general production function during the 1970s has been an important development in quantitative economics. As Hanoch (1975, p.395) remarks: "In recent years, several concurrent developments have increased interest in formulating more flexible and more general functional forms to be used in applications of production and consumer demand models. Among these are: developments in microeconomic

theory, particularly in duality theory with its variety of formulations and applications; theoretical and technical improvements in econometric methods, coupled with fast improvements in computer capacity, performance and techniques; accumulation of more detailed data; and increased interest in new types of problems, which by their nature require more flexible and more disaggregate models." Among these second-order approximations (SOAs) are the quadratic, log-quadratic or transcendental-logarithmic, and the generalised linear and Leontief functions. The starting point for a full exposition of SOAs would be the duality theorems first rigorously proved by Shephard (1953) and recently improved, refined and reviewed by Diewert (1974) and Fuss & McFadden (1978). Basically, it can be shown that, given a production function which satisfies positivity, linear homogeneity and concavity, there exists a cost function for which the average cost function also satisfies these three conditions. A whole family of duality theorems may be constructed by relaxing these assumptions in part and in turn. A particularly useful general theorem states that given an arbitrary production function F* which satisfies certain conditions (such as positivity, concavity, homogeneity) then there exists a function, such as the generalised Leontief or the translog or the generalised linear, which provides a second order approximation to F* at an input vector $\underline{X}$* at which F* is twice continuously differentiable.[19]

The most popular of the SOAs is undoubtedly the transcendental logarithmic (shortened to translog) or log-quadratic function. A special version of this log-quadratic function was derived by Kmenta (1967) as an approximation to the CES function, and Sargan (1971) later generalised this approximation in his study of UK engineering industries. Sargan's

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[19] One can distinguish between a second-order differential approximation (SODA) and a second-order numerical approximation (SONA). F* is a SODA to F at some point X_o if the first and second derivatives of the two functions are equal at X_o. F* is a SONA if $F^*(X_o) = F(X_o)$ and if F*(X) differs from F(X), for all X in some prescribed neighbourhood of X_o, only by terms of third order or above, i.e. $\frac{|F(X)-F^*(X)| \leq k\|X-X_o\|^3}{\|X_o\|^3}$ for some constant k. Any second order Taylor Series expansion (such as those used by Kmenta, 1967, and Sargan, 1971) is both a SONA and a SODA, although generally the two approximations are not equivalent (Lau, 1974). SONAs are favoured by, among others, Christensen et al (1971, 1973), whilst Diewert (1971, 1974) based his work on SODAs.

discussion of the log-quadratic was comprehensive but not as exhaustive as that of Christensen et al (1971, 1973) or Berndt & Christensen (1973, 1974) and so the function has become known as the translog as recommended in these latter, American, studies. This function is easily derived as an approximation to some arbitrary production function and takes the form:

$$\ln Q = \ln a_o + \sum_i a_i \ln X_i + \tfrac{1}{2} \sum_i \sum_j b_{ij} \ln X_i \ln X_j$$

The translog is sufficiently general to permit an arbitrary set of (Allen-Uzawa) elasticities of substitution but has the disadvantage that it may be a valid approximation only over a small range and may behave badly elsewhere.[20] The translog function assumes $b_{ij} = b_{ji}$ for all i and j, so that there are $(n^2 + 3n + 2)/2$ free parameters to estimate for an n-input function. With more than 5 or 6 separate inputs it becomes very difficult to estimate the function, impose and test the restrictions, and avoid multicollinearity. Other restrictions imposed on the translog function allow the testing of certain special cases against the more general functional form, and obviously reduce the number of free parameters. For example, the restrictions $b_{ij} = 0$ for all i, j reduce the translog to the logarithmically transformed n-input Cobb-Douglas function.

The translog function is usually estimated by adopting "a stochastic specification which reflects errors in optimising behaviour". Berndt & Christensen (1973), Burgess (1974), and others assume profit maximisation, whilst Hellinger (1975) assumes that hospitals in Ohio aim to maximise a combination of profits and capital. Either assumption leads to a set of derived demand equations - one for each input - relating the proportion of total cost due to each factor to the logarithms of the inputs and other influential variables. However, cost (or price) data is clearly needed to effect this method, and so other authors have estimated the translog function directly. This direct estimation method allows the translog to be estimated in the absence of cost (price) data but can only take full account of the various parametric restrictions if nonlinear

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[20] Notice that the linear-in-parameters functions discussed above are all approximations, often of only the first order. These criticisms thus apply equally to all of them. Nevertheless, nonlinear optimisation techniques and hypothesis testing routines are still relatively difficult to apply and are perhaps not yet adequately developed.

estimation techniques are used. Direct estimation in a linear-in-parameters framework has been used by Sargan (1971), Vinod (1972) and Lavers & Whynes (1978), among others, and was employed here.[21] Two approaches were adopted. It was first assumed that the inputs into the residential care process were N and J. The estimated translog for this two input process was, however, little improvement on the two input CES function presented in (d) above, and certainly did not significantly improve the overall fit. The second approach was to assume inputs N, S, C and D, and a number of different forms were estimated each corresppnding to different prior restrictions. These are described in table 8.3. and again we can use a schematic diagram to illustrate the links between equations (figure 8.4). The arrows again indicate the direction of increased generality (restriction relaxation) and the numbers on the arrows are F-statistics, with significance at the 5% level denoted by
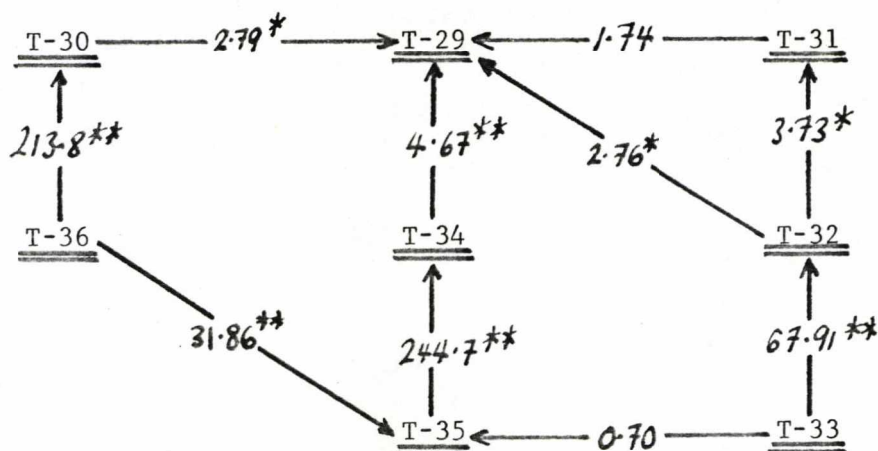
Figure 8.4

* and at the 1% level by **. Clearly, all routes lead to equation T29, which is given in full at the base of table 8.3 Unfortunately, the

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[21] Input values must be transformed prior to estimation. Sargan (1971) suggests weighting each observation by the input geometric mean, so that the geometric mean of each transformed input is equal to unity. This ensures the (notional) validity of the function as a second-order approximation. Inputs are not relabelled, but do reflect transformed values.

Table 8.3: Estimated Translog (or Log-Quadratic) Production Functions

Fit R²	k	s*	c	d	n	s²	c²	d²	n²	sc	sd	cd	sn	cn	dn	Eqn
.941	99	-	99	99	99	-	98	-	98	-	95	-	95	-	99	T29
.938	99	-	99	99	99					-	99	99	99	99	99	T30
.940	99	-	99	95	99	-	99	-	99				95	-	99	T31
.936	99	-	99	99	99	-	99	99	99							T32
.766	99	-	99	99		95	99	99								T33
.937	99	-	99	99	99	-	99	99	99	-	-	-				T34
.769	99	90	99	99		-	99	99		-	-	-				T35
.650	99	99	99	99						99	-	99				T36

Significance of Regression Coefficients for:

*Lowercase letters denote natural logarithms. k = intercept term.

Key: Significance denoted as either 90%, 95% or 99%. "-" indicates variable was included but coefficient did not attain 90% significance. Blank cell indicates a variable was not included.

Equation T29 in full (estimated by OLS): (with lower case letters denoting natural logarithms)

$$q = 6.31 + .012(s) + .127(c) + .120(d) + 1.37(n) - .010(s^2) + .080(c^2) - .008(d^2) + .392(n^2) - .015(sc) - .199(sd)$$
$$(274) \quad (.30) \quad (3.43) \quad (2.67) \quad (20.9) \quad (.13) \quad (2.35) \quad (.17) \quad (2.42) \quad (.20) \quad (1.99)$$

$$- .083(cd) + .390(sn) + .107(cn) + .511(dn) \qquad (R^2 = 0.941)$$
$$(1.34) \quad (2.29) \quad (.97) \quad (3.17)$$

marginal productivities are not very plausible when evaluated at the geometric means, and marginal rates of substitution are correspondingly distorted. At both arithmetic and geometric mean values of the inputs the scale elasticity exceeds unity, indicating the presence of economies of scale. The second best equation, as suggested by Figure 8.3, is T30 but this too suffers from implausible marginal product values, and the scale elasticity was less than unity at both the arithmetic and geometric mean values of the inputs.[*] Examination of the other translog functions reveals no better alternatives, and anyway all of the equations listed in table 8.3 assume S, C and D to be individually essential for production, which I have argued to be implausible for residential care. Thus, both approaches (S,C,D non-essential or essential) fail to produce reliable approximations, and the directly-estimated translog function does not therefore perform as well as the previously preferred function labelled T27 in (g) above.

8.4 Conclusion: The Potential of Estimated Production Functions

This chapter has ploughed a rather crooked furrow through the rather heavy production function soil, and has arrived at a preferred functional form (T27) which, whilst by no means perfect, does appear to yield plausible production parameters and to behave fairly well over the whole space spanned by the inputs. Staff inputs are assumed to be collectively but not individually essential for production, and this assumption more than any other has dominated the process of choice of the perferred function. Even this final function has a number of undesirable properties, including negative marginal productivities for some inputs in some homes and most of the problems encountered with this and other equations are attributable to the peculiar nature of "production" in this inter- mediate output approach to residential care and the unsatisfactory data. Econometric difficulties, including the lack of nonlinear optimisation routines, additionally gave rise to some problems which could have been avoided had the data set warranted the amount of work required. This was not thought to be the case in an exploratory and illustrative study such as that reported here.

This preferred functional form provided estimates of all of the production parameters introduced in section 8.2.1 above. These are

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[*]   It should be noted that "implausible" marginal products may be
       expected where there is X-inefficiency. These "implausible"
       values cannot, <u>alone</u>, constitute rejection of T30.

discussed in 8.3.2(g) and it is unnecessary to repeat the details here.
The estimated function can also be used to obtain a number of (alternative)
efficiency and productivity measures. Simple productive efficiency
indicators are provided by the residuals, computed either as $V = Q-\hat{Q}$ or
$U = Q/\hat{Q}$ where $\hat{Q}$ denotes predicted output (from equation T27). As one
would expect with efficiency measures obtained from regression residuals,
homes are closely bunched around either zero (for V) or unity (for U).
A large negative value for V or a small value for U can be interpreted
as technical or productive inefficiency, relative to the other homes in
the sample. Of course, given the intermediate stance forced upon the
present study by data constraints, there is the problem of disentangling
this inefficiency from an above-average quality of care. However, even
with intermediate output variables an estimated function such as T27
can be used to good effect. Homes deviating markedly from the sample
average (which is represented by the fitted equation), or equivalently
homes with large negative or positive V values or very small or large U
values can be examined more carefully by the policy maker or researcher
for possible explanations. The U "efficiency" measure was computed for
all 196 homes in the sample and is tabulated in table 8.4 by type of home.

Table 8.4: "Multiplicative Residual" Measures for Efficiency

	Purp.Blt.		Priv.Res.		Ex-PAI		Others	
	no.	%	no.	%	no.	%	no.	%
0.40-0.49	0	0	1	1	1	20	0	0
0.50-0.59	0	0	0	0	0	0	0	0
0.60-0.69	0	0	0	0	1	20	0	0
0.70-0.79	1	1	2	2	0	0	0	0
0.80-0.89	10	12	4	4	0	0	5	31
0.90-0.99	33	40	31	33	0	0	1	6
1.00-1.09	19	23	48	52	0	0	6	38
1.10-1.19	13	16	3	3	2	40	2	13
1.20-1.29	5	6	3	3	0	0	1	6
1.30-1.39	1	1			0	0	0	0
1.40-1.49	0	0	0	0	0	0	1	0
1.50-2.19	0	0	0	0	0	0	0	0
2.20-2.29	0	0	0	0	1	20	0	0
	82	100	93	100	5	100	16	100

This measure is preferable to V because of the multiplicative nature of
the production function and its lower sensitivity to extreme values of
the residuals. It is perhaps surprising that purpose built homes have a
modal class which is "inefficient" (U values between 0.90 and 0.99

inclusive) relative to the average, whereas the majority of converted private residences are relatively efficient in the production of "care services". Better measures of efficiency could be obtained by estimating production frontiers (cf., Førsund et al, 1980). Further insights into the efficiency of individual homes can be gained if input price data are available. Such data allows the examination of economic (or price) efficiency by comparing the relative prices with the relative marginal products.

As well as these regression-based efficiency measures, some productivity indicators can be calculated using the estimated production function. Crude productvity indicators, such as care services output per employee disregard the differences in productivity between staff types. It has therefore been suggested that marginal productivities be used to weight the inputs under the assumption that they adequately reflect relative input prices. This of course assumes that an efficiency position has already been approximated, and it is really only sensible to do this after the validity of this assumption has been verified. Two productivity measures were nevertheless computed for illustrative purposes. Both took the form:

$$\text{Prod} = Q/(S.MP(S) + C.MP(C) + D.MP(D) + N.MP(N))$$

where the marginal product weights were either fixed at their geometric mean values (Prod-A) or were allowed to vary between homes (Prod-B).[22] The functions for the marginal products are given in section 8.3.2(g). Prod-A is probably to be preferred because the assumption of constant marginal products ensures that data peculiarities do not have too great an impact on the measures. In fact, Prod-A was positive for all homes, whilst Prod-B was negative for six homes, all of which were rather small. Furthermore, under the assumption that relative marginal products are valid reflections of relative input prices, it is more sensible to take constant (mean) weights. Prod-A had a sample mean of 0.73, with a standard deviation of 0.55, and was not significantly correlated with Prod-B ($r = -0.04$). Both productivity measures were regressed on a set of variables reflecting home design, size, age and original function;[23] the

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[22] Notice that Prod-B is the reciprocal of the scale elasticity of the producing unit.

[23] These are the variables discussed in the Appendix to chapter 4, which were also used as instrumental variables in the 2SLS estimates of this chapter.

goodness-of-fit statistics were $R^2 = 0.062$ for Prod-B and $R^2 = 0.617$ for Prod-A, the latter indicating a significant (95%) association. Input productivity, as measured by Prod-A, appeared to be lower in smaller and in purpose-built homes, and to be higher in homes with more beds per bedroom. The inadequate productivity measures used here limit the usefulness of these findings, but similar examinations with better measures may be interesting.

The discussion of outputs and inputs in the first five chapters of this thesis emphasised the complexity of the process of production of welfare. The production functions estimated in this chapter are therefore quite clearly inadequate by the criteria of the production of welfare "paradigm". These intermediate production functions for "care services" are also inadequate on other counts: in particular, the absence of input price data restricted the range of functional forms that could be fitted, and the computational complexities of frontier estimation restricted the analysis to the fitting of "average" relationships. These inadequacies, as well as the enforced reliance upon intermediate output indicators, are of course shared by many, if not the majority of applied production function studies, especially those conducted in areas of social service provision, such as education or health. This is not intended as a defence of the old people's home functions, but it does serve to place them in context. Clearly, further production relations research should aim to improve the input and output variables used in the analysis, taking in non-resource as well as resource inputs, and measuring output as changes in resident well-being. It should aim to collect relevant input price data in order to aid the estimation process (through the fitting of the so-called "side relations"), and it should also aim to use more complicated (and more costly) computer routines to fit frontier and/or nonlinear-in-parameters relationships. Despite all the improvements that could be made, and would be made in an ideal world, the estimated functions presented here have usefully illustrated: (a) the importance of clarifying the essential or non-essential nature of the individual or collective inputs; (b) the methods of obtaining estimated relationships which accord with prior assumptions or beliefs about the variability of elasticities of substitution and elasticities of scale; (c) the potentialities and limitations of the

usual multiple regression (linear-in-parameters) routine with different
prior assumptions or requirements about productive processes; and (d)
the ease or difficulty of measuring the efficiency and productivity of
individual homes.

Chapter 9   DETERMINING THE STAFFING LEVELS OF OLD PEOPLE'S HOMES

9.1 Introduction

The determination of the optimal level of staffing of residential homes has received much attention in the years since the National Assistance Act of 1948. However, each recommendation for a staff-resident ratio has been based on only a partial study of the many determinants.[1] In this chapter I use the production relations approach to examine the quantitative importance of a number of these determinants. In particular, the impact of home design, resident dependency and service delivery determinants is examined using data collected in the 1970 Census of Residential Accommodation. The aim of this chapter is not to draw up hard and fast rules or even suggestions for the staffing levels of residential homes. Rather, I present quantitative evidence which impinges upon any such attempt to draw up staffing recommendations and which it would be dangerous to neglect if available manpower resources are to be effectively and efficiently employed in residential care of the elderly. Whilst I concentrate empirical attention upon residential homes for the elderly, both the underlying theoretical framework and the general model of approach should be applicable in the analysis of other areas of social intervention. The implications for manpower planning of the capital programme, of the present policy of opening day care centres in old people's homes, and of the increasing dependency of residents are set out in this chapter. Section 9.2 presents the "model" of employment levels for old people's homes, discussing the various factors which impinge upon attempts to draw up staffing recommendations. These are discussed only

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[1] This partiality appears not to be recognised by the authors of most studies. Two exceptions are the Birch Committee and the Residential Services Advisory Group. The Birch Committee felt: "It is not possible to provide a single answer at a point in time to what is a continuing query about the appropriate deployment and training of staff in the light of changing needs, demands and opportunities" (DHSS, 1976, paragraph iii). Similarly, the Residential Services Advisory Group (1975) in their study of levels of care in old people's homes, argued that it was "well-nigh impossible to recommend general ratios of staffing based only on numbers of residents. It is the recommendation of the Working Party that the factors such as those highlighted ... must be the subject of detailed operational research, and that all local circumstances within each individual Home must be analysed, in order to arrive at a realistic appraisal of staffing needed to cover the 105 working hours each week" (ibid, paragraph 13).

briefly, many of them having already been examined in chapter 4. In
section 9.3, the results of the empirical analyses are presented and
discussed. Finally, the policy implications, and the lacunae, of the
results are considered in section 9.4.

9.2   A Model of Employment for Old People's Homes

9.2.1   Employment Functions   Previous studies of manpower policies in
the residential care sector have generally included at least a section
which sought to establish standard or "average" staff levels or staff-
resident ratios. These studies vary in the extent to which they take
account of such situational determinants as resident dependency and needs,
home design, activities carried out by residents, economic aspects of
care (particularly wage levels), and so on. The Castle Priory Report
(1968) on the residential task in child care and the study of old people's
homes in the London Boroughs commissioned by the Residential Services
Advisory Group (1975) are just two examples. It is useful, therefore, to
try to collect these various studies within a general theoretical framework.
Such a framework has the signal virtue of clarifying the policy uses and
limitations of existing manpower studies, whilst at the same time possibly
pointing the way for future research in this area. The starting point
is to distinguish and define the inputs and outputs of residential homes,
to relate them in a production function, and then later to derive a
series of relationships which express the levels of employment of the
various manpower inputs in terms of the outputs and other determining
factors. Such an approach has a long and not undistinguished pedigree in
general economic models. (See for example, the review article of Briscoe
and Peel, 1975). Such an approach is also related to the so-called "side
relations" method of estimating production functions (via the marginal
product conditions). The employment or input demand function attempts to
model the process whereby a particular level of the manpower or capital
input is employed by referring to the desired and actual levels of output,
the relative costs of the inputs, the levels of employment of other inputs,
and any other factors, particularly local factors, which appear important.
Thus, given the statistical requirements of a sufficient number of homes
to allow reliable estimation, and given the large number of variables which
should be included in a fully specified employment model, the data needs

of a full estimation exercise are considerable. It is not surprising,
therefore, that even the most aggregate of models in the economics literature
falls short of such comprehensiveness, and that previous manpower studies
in the personal social services should be deficient on a number of counts.
Principal among these deficiencies are the complete neglect of final outputs
and of wage and salary levels. It is not possible to draw up fully valid
efficiency prescriptions without taking account of these two factors,
although we can take steps in the general direction with the help of
certain partial analyses. It is also possible to shed some light on the
wide variations in staff-resident variations that have been remarked upon
by previous writers (cf., Townsend, 1962, p.76).

9.2.2   The Principal Determinants of Staffing Requirements   The theoretical
considerations briefly introduced above may be combined with the findings
of earlier studies in order to draw up a list of the empirical determinants
of staffing requirements of old people's homes.[2]

(a) Staff characteristics. As discussed in chapter 4, the staff or
labour input into residential care has three basic components - the
number of employees, the number of hours worked and the quality of service.
Staffing requirements are crucially dependent on these most basic of
factors, the third of which is frequently discussed when the issues of
training, support and supervision are raised. The need for twenty-four
hour coverage means an intricate shift system and more staff will be needed
at certain peak times to help residents with meals and with bathing.
The physical ability of staff will be important in the care of frail and
handicapped elderly persons. The increasing frailty of residents prompted
the DHSS to recommend a minimum of 2 night staff to ensure sufficient
coverage in the event of fire. These considerations are more a matter
of the definition rather than the determination of the staffing requirements
and thus, unfortunately, are sometimes omitted from policy discussions.

(b) Output. The economist would place the actual or desired
(planned) level of output in the very centre of the study, the labour

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[2] There is no reason why the approach described here should not incorporate
(or be incorporated in) the approaches of, for example, Cypher (1974),
Holme & Maizels (1978) and Stevenson et al (1978). The links between
aproaches are not, however, discussed here.

demand function being a derivative of the production model. The planned level of "production" or achievement along each of the dimensions of final output will clearly determine the staffing requirements of a home. Other things being equal, one would expect a higher level of planned achievement (enhanced resident quality of life) to necessitate a greater input of manpower resources. Given the problem of deciding upon suitable measurement instruments for each of these dimensions of final output, let alone the difficulties of operationalisation, it is not surprising to find that all previous studies that have addressed the output problem have either settled upon an intermediate output measure such as the quality of care, or have measured certain more tangible resident characteristics such as dependency. Nevertheless, the importance of distinguishing between final and intermediate conceptualisations has been emphasised. For example, the DHSS (1976c) review of residential care argued that "in arriving at an appropriate ratio of staff to residents, it is essential to take into account the amount of staff time to be assigned to the care of the residents, as opposed to the domestic and administrative needs of the establishment" (p.13).

(c) Resident characteristics. The "totality" of residential care, meaning in this case the fact that all activities of daily living are performed within the home or under the auspices of home staff, implies that virtually any resident characteristic which impinges upon the performance of any of these tasks should be included in a study drawing up staffing requirements. Previous studies and commentaries have most frequently stressed resident needs and dependency - "the reliance placed by residents upon staff for mobility, personal care, safety, nourishment, friendship and entertainment" (Residential Services Advisory Group, 1975, paragraph 17). The increasing dependency of residents over the post-war period may well have initiated, and certainly accentuated, the staffing problems of old people's homes, as the Ministry of Health tended to point out in virtually every Annual Report, and voluntary and statutory organisations responded by raising staffing levels and ratios wherever possible (Townsend, 1962, p.121; NOPWC, 1966, paragraph 65; Carstairs & Morrison, 1971, paragraphs 6.50-6.55; DHSS, 1975, paragraph 3.11;

Age Concern & NCCOP, 1976, paragraph 60)[3]

(d) <u>Home characteristics</u>. Surprisingly little attention has been paid to the cost, care, and quality of life ramifications of varying residential home designs, despite a succession of Ministerial directives since the National Assistance Act. Townsend's (1962) seminal study and the recent research by Lipman & Slater (1975), by the members of the Oxford Polytechnic Department of Architecture (Newman et al, 1974) and by Thomas et al (1979) on aspects of micro-design have given us insights to complement a large body of American evidence on the relationship between the physical structure and layout of a home and the well-being of residents. However, to the best of my knowledge, none of these studies have so extrapolated the results to trace out the impact of design on operating costs or on manpower requirements. A carefully designed old people's home can foster resident independence and considerably reduce the demands made upon staff. As well as these design features, the organisational characteristics of the home will play some part in the determination of staffing requirements. The formal and informal modes of control and consultation, the extent to which group living units are favoured, and the general management of staff and residents may all be important. Only cautious conclusions have been reached by previous authors. Thomas et al (1979), for example, found that group homes were better staffed, but found no relationship between home size and the number of staff in middle and senior grades. In contrast, Carstairs & Morrison (1971, paragraph 3.5) reported economies of scale in employment, and the DHSS (1973a, p.13) argued that larger homes had more flexibility in staffing policies and practices.

(e) <u>Wages and salaries</u>. The economist would find it quite inconceivable to omit relative wages and salaries from an employment model. Yet it is

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[3] Two complications should be noted. Firstly, as discussed in Chapter 5, staffing levels, deployment and attitudes will in part determine resident dependency. This clearly introduces simultaneity into a more complex model of care. Secondly, dependency not only raises staff <u>numbers</u>, but also tends to increase the number of <u>hours</u> worked by each staff member (DHSS, 1978b, paragraph 7). This implies a need for very carefully measured staff inputs, taking account of the three dimensions discussed in (a) above. Some researchers have circumvented these problems by studying directly the staff <u>cost</u> implications of resident dependency (cf. McCaffree, Winn & Bennett, 1977).

only recently, after the dramatic cutbacks in public expenditure, that
social services departments seem to have taken rather more account of
such pecuniary determinants. Economic rationality as suggested by the
theory of the firm requires that a producer employ inputs in such proportions
as to ensure that input price (wage) ratios are equal to marginal productivity
ratios. Whilst such conditions as these are virtually impossible to
attain or even approach in practice, it is clear that the relative prices
of inputs used in the production process should affect management
decisions. In the residential care context, the relative salaries of
qualified and unqualified care staff, the relative wages paid to care and
domestic staff, and the relative costs of labour and capital inputs are
obviously important data for decision-making.

(f) Services offered. The services rendered to residents and to
other social services clients by residential staff will also have an impact
on the number and quality of staff required. In discussing the deployment
of staff the Birch Report argued that the determinants of manpower
requirements include: "the development of or participation in a range of
activities to enrich the lives of residents or to promote their social and
intellectual growth; communicating with and bringing in other services; and
in some cases special demands made by short term admissions of day care
clients" (DHSS, 1976, paragraph 6.12). It will not be possible to greatly
increase the range of social and therapeutic services offered to residents
and day care clients without a corresponding increase in the number of
staff employed.

(g) Control. Finally, we would expect to find some variation in
staffing levels between local authorities and also between controlling
bodies (public, private or voluntary). Whilst home ownership or control
is not a determinant per se of manpower requirements, there is plenty of
evidence to suggest considerable variation attributable to these factors
(Carstairs & Morrison, 1971; DHSS, 1975; Williams Committee, 1967), and any
study of institutional staffing should therefore control for them. It
should however be noted that many of the differences are attributable to
differences in some of the other factors listed above as (a) - (f).

9.3 The Empirical Findings

To examine the impact of all these determinants on the manpower

requirements of residential homes for the elderly would require a large custom-built data collection. Such a collection was out of the question at the time of the present study. However, information collected by the Department of Health and Social Security in their Census of residential homes in March 1970 was eminently suitable for the purposes of this research and indeed their collection includes a unique juxtaposition of data on resident dependency, home design, ownership and vintage, services offered to day care clients, and numerous aspects of staffing. Whilst the data is now ten years out of date, its comprehensive list of variables and national basis are unrivalled. I do not believe that the relationships modelled in the analyses reported below are qualitatively different from those that would be observed today. Furthermore, the analyses are intended merely to be indicative of the likely scale of influence and not to establish rigid guidelines for operation.

The data used for estimating the production functions which were the subject of discussion in chapter 8, and which were introduced in the Appendix to chapter 4, were used for the present study. Initially, the full sample of 200 County Borough homes for the elderly or elderly mentally infirm owned by local authorities was used for the empirical analyses. However, these estimated relationships showed quite clearly that the original function of the home (purpose-built, former private residence, former PAI, or other) had such an important influence on various aspects of home design and operation that it was decided to restrict the study of staffing requirements to the sub-sample of 82 purpose-built homes. What is more, the current and likely future emphasis on the construction of new purpose-built homes rather than the conversion of existing premises makes such a restriction quite sensible for policy purposes.

The Census questionnaire distinguished four categories of day staff and two of night staff. Day staff were grouped under the headings of supervisory, care, domestic or office and secretarial staff; night staff were split into those on duty and those on call. In the sample of 82 purpose-built homes there were only two whole time equivalent office and secretarial staff and these were therefore added to the supervisory staff for the purposes of this study. Those night staff on call were added to those on duty (with a weight of one half) to obtain a single, albeit crude, night staff variable. In each case, therefore we are working with

"whole time equivalent" staff numbers. Few guidelines were laid down for matrons to fill in this part of the questionnaire but the study by Imber (1977) confirms that there were no problems of interpretation or classification. The aims of Imber's study were to examine: "the extent to which the labels used in the (Census) classification covered homogeneous groups of staff, ... to discover whether a distinction could be drawn between domestic and care staff, ... (and) to examine the feasibility of distinguishing two types of care staff - those who provided nursing care and those who provided the social care which is regarded as the major function of residential homes and distinguishes them from either nursing homes or hostels" (p.1). Using controlled data collection and participant observation within a quasi-experimental design for a total of twelve homes, she found that: "domestic staff kept the home clean and tidy and care staff provided the same service to residents, whilst attempting to provide for their social and psychological needs" (p.26). A detailed listing of the tasks performed by supervisory, care, and domestic staff was also drawn up, the staff roles being differentiated by principal component and discriminant analyses. The immediate implication of Imber's conclusions for the present study is that the distinction between supervisory, care, and domestic staff is meaningful, and I shall later look at the detailed staff roles in the light of the present statistical analyses. A discussion document from the Social Work Service of the DHSS also confirms that this three-fold staff categorisation is accepted as the most useful (DHSS, 1976c).

For each of the four resultant staff categories, i.e. the three mentioned above plus night staff, two separate series of regression analyses were performed. These analyses were designed to model the impact of resident dependency, home design, and service delivery on the number of whole time equivalent staff and on the corresponding staff-resident ratio. It was considered necessary to look at both staff levels and staff-resident ratios for two reasons. Firstly, the dependency, design, and service variables may well influence one staff variable but not another, and with an exploratory study such as this it is best to keep one's options open. Secondly, it is sometimes argued that ratio variables can introduce biases into regression estimates but at the same time reduce multicollinearity and heteroscedasticty. Because of these possible technical misspecifications

it is safer to estimate both equations and to look for inconsistencies and contradictions between them.

A large number of potential determinants of the manpower requirements of old people's homes were available in the Census data set, particularly features of home design. The assumption upon which the usefulness of the regression analyses depends is then that social services departments and matrons so adjust the levels of employment of home staff in response to these determining factors as to maintain a reasonable and consistent standard of care. This assumption is certainly strong and is forced upon us by the absence of specially collected data. However, it might be reasonable to assume that deviations from an average standard of care were randomly distributed and that the equations below indicate the average manpower requirements of old people's homes with the given characteristics. As noted above, a purpose built collection of data would allow this assumption to be checked.

The dependency, design and service characteristics of the home that make up the set of independent variables for the regression analyses are listed below. There is no reason to exclude any of these variables from the analyses for supervisory, care, and domestic staff on a priori grounds, although many were later omitted on the empirical grounds that they appeared to exert no significant influence on the dependent variable. Only "significant determinants" are thus retained in the final equations. For the night staff analyses some of the variables are clearly inappropriate and were thus omitted before estimation proceeded; these are marked with an asterisk in the list that follows. The full set of determinants with explanations and definitions wherever necessary, was as follows:

Design: Number of resident places normally in use
            Proportion of beds on upper floors
            Proportion of beds on upper floors without a lift service
            Proportion of beds on floors without a bathroom or shower
              on same floor
            Number of residents per W.C.
            Number of residents per bathroom or shower
            Proportion of residents in single rooms
            Proportion of residents in double rooms
            Average number of residents per bedroom
            Average size of dining room (in number of resident places)*
            Average size of sitting room (in number of resident places)*

Sufficient sitting space for all residents at one time
(1 = yes; 0 = no)*
Number of non-self-contained buildings
DHSS Fabric Index (1 = seriously inadequate; 0 = inadequate)[4]

Service: Extra sitting/dining space for day care clients (1 = yes;
0 = no)*
Room set aside for laundry (1 = yes; 0 = no)*
Number of midday meals served from kitchen for outside
consumption*
Room reserved for residents' private use (1 = yes; 0 = no)*

Dependency: Proportion of residents in the heavy dependency group[5]
Proportion of residents in the appreciable dependency group
Proportion of residents in the limited dependency group.

Also included among the regressors were the staff levels and staff-resident
ratios for other categories of staff, in an attempt to explicitly model
the substitutability between staff. In fact, it will be seen that none
of these hypothesised interrelationships between staff types was significant
once design, dependency and service variations have been taken into account
This was surprising in view of the significance of some of the simple
correlation coefficients (table 9.1), but it may mean that the apparent

Table 9.1: Intercorrelations of Staff Levels and Ratios

	NgR	DR	CR	SR	Ng	D	C
S	.029	.195	-.017	.640*	.222*	.267*	.078
C	-.193	.096	.771*	-.401*	.385*	.484*	
D	-.129	.785*	.166	-.234*	.386*		
Ng	.606*	.138	.121	-.166			
SR	.333*	.102	-.056				
CR	.047	.143					
DR	.103						

(Notation explained in table 9.2)

* indicates correlation coefficient significantly different from zero at 95% level

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4. This index is defined in DHSS (1975) and was discussed in
chapter 4 above (see P.154). Notice that there were no homes
described as "adequate" or of the "Building Note Standard"
in the population of 3365 homes in use in 1970. Thus the
fabric dummy takes the value 1 for seriously inadequate and
0 for inadequate.

5. As defined in the Appendix to chapter 3.

substitutability of staff may be less important than is sometimes suggested. Actually, Imber (1977) found little overlap in staff roles and tasks.

The dependent variables (or regressands) were the staff levels and staff-resident ratios whose intercorrelations were presented in table 9.1 and whose basic characteristics and variabilities are given in table 9.2.

Table 9.2:   Properties of the Staff Levels and Ratios

	Mean	Std. Dev'n	Min	Max	Coeff. Var'n*
Supervisory staff (S)	2.146	0.650	1	4	0.303
Care Staff (C)	9.329	3.642	1	19	0.390
Domestic Staff (D)	8.842	3.268	0	17	0.370
Night Staff (N g)	2.549	0.804	0	5	0.315
Supervisory/Residents (SR)	0.050	0.018	.02	.11	0.358
Care/Residents (CR)	0.206	0.061	.01	.36	0.298
Domestic/Residents (DR)	0.196	0.060	0	.36	0.306
Night/Residents (N gR)	0.058	0.018	0	.11	0.305

* Coeff.Varn'n = coefficient of variation = standard deviation divided by mean.

It can be seen that the variations between homes in staffing levels and ratios are fairly large. In subsections (a) - (d) below the empirical results for each of these four staff levels and ratios are presented in turn. Regression coefficients that are significantly different from zero on the conventional t-test are asterisked: 90% significance* and 98% significance**. These significant coefficient are to be interpreted as indicating that the probability of the particular determinant having no influence upon the staff level or staff-resident ratio is less than 1 in 10* and less than 1 in 50** respectively. The overall performance of each regression equation is measured by the R^2 coefficient. Clearly, an R^2 value close to unity means that most of the variation in staff employed by old people's homes is attributable to these determining factors.

(a) Supervisory staff. As one would expect, the variation in the number of supervisory staff between homes was relatively small, although the supervisory staff-resident ratio ranged from 10 to 50 residents per

supervisory staff member. Imber's (1977) detailed study of staff roles
revealed that matrons and other supervisory staff carried out "social and
nursing care" tasks, such as administering drugs, changing dressings,
reading to residents, playing games with residents, organising social
events, and paperwork. Whilst the present data set did not allow such a
detailed examination, the regression equations are in concordance with
these results. The equation finally selected implies that the number of
whole time equivalent (w.t.e.) supervisory (and office) staff was on
average equal to:

$$0.23 + 8.97* \times \text{ number of beds on floors without bathroom}$$
$$+ 0.13* \times \text{ number of residents per W.C.}$$
$$+ 0.08** \times \text{ number of residents per bathroom}$$
$$+ 0.67* \times \text{ number of non-self-contained buildings}$$
$$- 0.70** \text{ if the home is seriously inadequate (fabric index)}[6]$$
$$+ 0.34** \text{ if there is a room set aside for laundry}$$
$$+ 0.45 \times \text{ proportion of residents of heavy or appreciable dependency.}$$

The R^2 coefficient was equal to 0.326. The second equation implies that
the ratio of supervisory staff to residents was equal to:

$$-0.023 - 0.002** \times \text{ number of resident places normally in use}$$
$$+ 0.00001 \times \text{ (number of places) squared}$$
$$+ 0.189* \times \text{ proportion of beds on floors without bathroom}$$
$$+ 0.002* \times \text{ number of residents per W.C.}$$
$$+ 0.001 \times \text{ number of residents per bathroom}$$
$$+ 0.057 \times \text{ proportion of residents in single rooms}$$
$$+ 0.076* \times \text{ proportion of residents in double rooms}$$
$$+ 0.031 \times \text{ average number of residents per bedroom}$$
$$+ 0.025** \text{ if there is sufficient sitting space at one time}$$
$$+ 0.009** \text{ if there is room set aside for laundry}$$
$$+ 0.0002* \times \text{ number of meals for outside consumption}$$
$$+ 0.010 \times \text{ proportion of residents of heavy or appreciable dependency}$$

In this case the R^2 coefficient was as high as 0.554.

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[6] This fabric index "dummy variable" appears with a negative coefficient,
implying that homes whose "fabric" was seriously inadequate had fewer
staff than a home that was simply inadequate. This contradicts one's
prior notions about staff -capital substitutability, but there are two
plausible explanations. Homes whose design is poor do have fewer staff,
either because they are deliberately under-provided or because they have
difficulty attracting and keeping staff. This in turn implies either that
staff in poorly designed homes work much harder to compensate for inadequacies
and to maintain the standard of care, or alternatuvely that there are
some homes or areas that are under-providing both in terms of capital and
in terms of staff. Secondly, the result may be a consequence of multi-
collinearity, about which we can do relatively little without a considerably
modified data set. Despite its counter-intuitive influence, the fabric
variable will always be included whenever it is statistically significant.

It is not necessary to discuss each of these determining factors in detail but a few general points and interesting influences should be noted. Firstly, the surprisingly good R^2 coefficients imply that the included design, dependency, and service delivery variables are extremely important in the determination of the supervisory staff requirements of this sample of purpose-built old people's homes. We will find that this is the case for most of the equations reported here and is evidence of the sensitivity of staffing needs to situational factors in the homes. Secondly, quite a number of design features have a significant impact. For example, the second equation implies that there are more supervisory staff per resident when there are more residents to a bathroom and to a W.C., when there are more beds on floors without a bathroom or shower on the same floor, and when there are more residents in single and in double bedrooms (and hence fewer in three or more bedded rooms). None of these influences is implausible although the nature of the associations may be more complex than is indicated by the equations. (See, for example, Barratt, 1976, and chapter 4 above). Thirdly, the incidence of a room set aside as a laundry is very significantly related to a higher number and ratio of supervisory staff, and the production of meals for consumption outside the home (for example, when delivered in a meals-on-wheels service) also raises the apparent requirement. The dependency of residents entered both equations (in each case with t-statistics only marginally below the 90% significance levels) but, as we shall see, is less important than for the care staff requirement. Finally, the first two terms of the second equation imply that the supervisory staff-resident ratio tends to fall as homes get larger, although it falls at a decreasing rate. Clearly there are either "economies" in large scale provision in this case (under the assumption that quality of care is invariant with respect to home size) or else larger homes supervise their residents slightly less, providing less social and nursing care.

(b) <u>Care staff.</u> An encouraging amount of agreement was found between the two explanatory equations for care staff, the staff level equation fitting rather better than the ratio equation. The number of care staff is given by:

```
-2.64 + 0.31** x number of resident places normally in use
      - 0.09   x average size of dining room
      - 0.17*  x average size of sitting room
      - 1.13*  if there is room set aside for residents' private use
      + 2.30** if there is additional provision for day care
      + 6.25** x proportion of residents of heavy dependency
      +11.13** x proportion of residents of appreciable dependency
      + 2.76   x proportion of residents of limited dependency
```

The goodness-of-fit statistic, R^2, took the high value of 0.595. The corresponding coefficient for the second equation was much lower, at 0.208, the equation implying that the ratio of care staff to residents averaged:

```
0.151** - 0.039*  x average size of sitting room
        + 0.035*  if there is additional provision for day care
        + 0.154** x proportion of residents of heavy dependency
        + 0.276** x proportion of residents of appreciable dependency
        + 0.066   x proportion of residents of limited dependency.
```

The dominant feature of both equations is the overwhelming importance of resident dependency in the determination of the care staff requirement. This finding, together with the equally apparent impact of day care provision, lends support to Imber's (1977) finding that care staff performed the roles of "washing clothes, washing residents, dressing residents, making beds and taking residents to the toilet, sluicing" (p.26) - roles that are likely to increase in difficulty with the increasing dependency of residents. It was not expected, however, that appreciably dependent residents would be more demanding on care staff than heavily dependent residents. This result, paradoxical at first glance, may possibly be explained by reference to the definitions of the dependency categories themselves. Appreciably dependent residents are, by definition, a little more ambulant and mobile than the heavily dependent and may therefore need rather _more_ supervision and care. Alternatively, or additionally, this unexpected result may reflect an inadequacy in the dependency categorisation that was used - for dependency should "provide an indication of the residents' need for care within the home and thus of the workload ... represented for the staff" (DHSS, 1975). The care staff requirements of these homes were little influenced by the design and internal scale of the homes, and meals and laundry services had no impact.

The findings of this subsection could be of particular importance for planning purposes, for social services departments are increasingly opening the doors of their residential homes to day care clients, and the aggregate

degree of resident dependency is known to be rising continually as the
need for institutional care continues to grow faster than the supply of
available places. Care staff form the largest single category of staff
in residential homes and show most variation; the consequent need for
careful planning is thus self evident.

(c) Domestic staff. Domestic staff, according to Imber (1977, p.26)
carry out the tasks of "preparing food, cleaning, tidying and washing up".
The Residential Services Advisory Group (1975) recommended that a study
be made of "the domestic needs of homes starting off from the obvious
basic component of the square footage of floor area requiring cleaning. The
number of single or multiple bedrooms, cork or carpeted floors, wood and
glass strip partitions, staircases, and other fittings should be borne in
mind when calculating domestic needs, as well as the requirements
of dining room duties and kitchen assistance" (paragraph 30). Although our
data set did not allow us to look at such micro-features of design as
cork floors or glass partitions, the observed associations were numerous
enough and significant enough to be of policy significance. The number
of whole time equivalent domestic staff was given by:

- 5.50	+ 0.28*	x number of resident places normally in use
	- 0.003*	x (number of places) squared
	+ 0.69**	x number of residents per W.C.
	+ 0.15*	x average size of dining room
	+ 0.10	x average size of sitting room
	- 3.54	x if there is sufficient sitting space at one time
	+ 3.00	x number of non-self-contained buildings
	- 1.38*	if room set aside for residents' private use
	- 3.63*	if home is seriously inadequate (fabric index)
	+ 0.82	if additional space for day care
	+ 0.94	if room set aside for laundry

This set of eleven determining factors explained half the observed variation
in the number of domestic staff ($R^2 = 0.509$), a better performance than
the equation for the domestic staff-resident ratio ($R^2 = 0.231$). The
latter equation gives the average ratio of domestic staff to residents as:

as: -0.050	+ 0.004	x number of resident places normally in use
	- 0.0001**	x (number of places) squared
	+ 0.014**	x number of residents per W.C.
	+ 0.067**	x proportion of residents in single rooms
	+ 0.003*	x average size of dining room
	- 0.024	if the home is seriously inadequate (fabric index)
	+ 0.014	if room is set aside for laundry

As we should expect, the dominance of the design features of the home

is almost complete, with only a few service variables and no dependency characteristics being significant. The relationship between domestic staff numbers and ratios and the size of old people's homes, as measured by the number of resident places normally in use, is distinctly curvilinear. Provision of staff per resident is very much higher in the smaller home than in the larger, other things being equal, there possibly being some "economies of large scale" in domestic employment. This ratio was positively associated with the proportion of beds in single bedrooms, as might have been anticipated, and also positively associated with the number of residents per W.C. and with the average size of dining room, both of which are less easily explained. None of the service variables is particularly influential and the variable measuring the number of meals prepared for consumption outside the home does not appear. The provision of day care services has only a small impact upon the number of domestic staff employed.

(d) Night staff. The same analytical procedure was used to examine variations in the number of whole time equivalent night staff, defined as the number of staff on night duty plus half the number of staff on call. The arbitrariness of this measure can be criticised and new standards for staffing old people's homes at night introduced since the Residential Census will influence the light in which these results are viewed. I report them here for the sake of completeness, however, and because they are still indicative of some of the determinants of night staffing requirements.

The number of night staff was found to be equal to:

$$
\begin{aligned}
0.16 &+ 0.03^{**} && \text{x number of resident places normally in use} \\
&+ 0.28 && \text{x proportion of beds on upper floors} \\
&+ 0.08 && \text{x number of residents per WC} \\
&+ 0.03 && \text{x number of residents per bathroom} \\
&- 0.35 && \text{if home is seriously inadequate (fabric index)} \\
&+ 0.62 && \text{x proportion of residents of heavy dependency} \\
&+ 0.98 && \text{x proportion of residents of appreciable dependency}
\end{aligned}
$$

The R^2 coefficient for this equation was a respectable 0.301 and the effects of all but the fabric variable can be easily explained and rationalised. Otherwise it is the larger homes, the homes with a higher proportion of beds on upper floors, and the homes with higher facility-resident ratios and higher dependency that employ more night staff. The number of night staff per resident was given by:

0.087** - 0.002*   x number of resident places normally in use
       + 0.00001 x (number of places) squared
       + 0.002   x number of residents per WC
       + 0.009   x proportion of residents in single rooms
       - 0.008   if the home is seriously inadequate (fabric index)
       + 0.017   x proportion of residents of heavy dependency
       + 0.027   x proportion of residents of appreciable dependency

The R^2 in this case is lower, at 0.222, but the effects of the determinants are very similar to the former case. Note that once again it is apparently the appreciably dependent and not the heavily dependent resident who is most demanding on the home staff.

9.4 Conclusion: Lacunae and Implications

A study of the manpower requirements of any mode of personal social services care which exploits a data set collected for quite different purposes must inevitably harbour a number of practical and conceptual lacunae. Given the fairly comprehensive list of potential determinants in the third section of this chapter, it is perhaps necessary to attempt to assess the importance of those determinants omitted from the study because the requisite data were unavailable.

The measure of the staff input forced upon the investigation - the number of "whole time equivalent" staff - is clearly inferior to a measure in terms of the hours of input. The measure is also deficient in its disregard of the quality of manpower, as reflected perhaps in the education, training and experience of residential staff. The Residential Census questionnaire did in fact collect a limited amount of information on staff qualifications but there was no simple way of including the information in an analysis of this kind.

The most important omission from the present analysis is the inability to introduce final output indicators into the regression equations. The need for measures of resident quality of life(and changes therein over time) is now widely recognised. We are still some way from reaching a consensus as to the dimensions of quality of life and from constructing valid and reliable indicators for each, but substantial progress is being made as is evident from the discussion earlier in this thesis. For the time being dependency assessments of residents must be accepted as proxy

variables and it is thus encouraging to find their collective influence on supervisory, care and night staff variables to be important.

Only a little less unfortunate than the omission of final output indicators is our enforced neglect of wage and price variables. It is a well known result of econometric analysis that omitted variables, if correlated with included variables, will bias the estimated coefficients downwards, dampening the true influences of these included variables.[7] The numerical coefficients on the staffing determinants in the eight equations reproduced above are thus probably dampened versions of the true coefficients. The other unfortunate consequence of this omission is that we are thus still unable to monitor the responsiveness of matrons and social services departments to changes in economic climate as transmitted through changes in relative prices and wages. This is a crucial datum for policy making, but it must await further research before it can be revealed. Finally, the treatment of resident characteristics, home characteristics and services offered is less comprehensive than one would like, as the discussion in section 9.2.2 makes plain.

It is possible that this study could be criticised on a further count - its pervasive reliance on staff employment and not staff complement. Should we have added the number of staff vacancies to the number of staff in post on census day? It was felt that the number of staff in post was a more reliable indicator of the labour input because many of the vacancies are probably long-term rather than short-term, reflecting more the standards recommended by social services departments for the staff complement of homes than the realities of life and work in the home itself. We shall find in the next chapter that staff vacancies are related to home design, but this does not detract from the argument that staff numbers are probably more reliable than staff complements for the present purposes.

The implications of this study for policy making with regard to residential care of the elderly may be briefly summarised,bearing in mind

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[7] This bias will be reduced if the omitted prices do not vary very much between homes in the sample.

the various lacunae. Firstly, the constraints of economic recession make it imperative to employ our available resources efficiently and effectively. It is not efficient to open purpose-built homes whose design and general structure make it unnecessarily difficult for staff to carry out their normal caring roles. The range of design features that could be included in this study was very limited but even so a number of potentially useful "inefficiencies" were revealed. Second, the steady upward trend in the average age and overall dependency of new entrants to old people's homes in the last few years will steadily push up the staffing requirements - particularly for care staff and night staff - if standards of care are not to fall.[8] These requirements have been roughly quantified in the regression equations reported above and can be seen to be considerable. Third, we have been able to quantify the impact of some of the additional services offered by old people's homes. Of these, laundering, the provision of day care services, and the production of meals for outside consumption were often particularly important. If the old people's home is thus to become the hub of a complex of community services for the elderly, the staffing implications must be carefully assessed. Fourth, the findings here provide a useful supplement to the production function estimates of chapter 8, and particularly provide useful further information for understanding cost variations. Given the importance of wage and salary payments relative to total operating costs, the explanation of variations in staffing levels and staff-resident ratios goes some way to explaining variations in total and average operating costs.

There are, of course, many more aspects of the manpower question, and indeed of the whole planning question, that must be considered before we can claim to be able to supply personal social services to needy individuals with a reasonable degree of social and economic efficiency. Chapter eight of the Birch Report (DHSS, 1976) set out many of the staffing issues in need of further study; the Social Work Services report (DHSS, 1976c) highlighted many more. There is still, however, a very pressing need for much more research in this area of social policy, for, as Rowntree (1947, p.66) wrote: "It is important that there should be a correct numerical

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[8] The actual (w.t.e.) staff-resident ratios have increased from 0.058 in 1970 to 0.070 in 1975 (supervisory and administrative staff) and from 0.334 to 0.400 (care and manual staff). See DHSS (1978b, table 8).

ratio between staff and residents, for this ratio largely determines on the one hand the cost of maintenance, which will be unduly high if the ratio is too high, and on the other hand the well-being of the residents, which will suffer if the ratio is too low."

Chapter 10   STAFF TURNOVER AND VACANCIES IN OLD PEOPLE'S HOMES

10.1 Introduction

Residential care services for the elderly have long been bedevilled
by a number of fundamental and interrelated staffing problems. Principal
among them have been high rates of staff turnover, large numbers of unfilled
posts, low rates of recruitment, and shortages of suitably qualified
candidates.   These problems all stem from the same basic difficulty: that
residential care for the elderly has for long been held in relatively
low esteem by social services personnel and the public alike. This was
almost certainly one root cause of shortages in staffing which, in turn,
raised resident-staff ratios and thereby rendered the job less attractive.
This had at least two effects: it raised the rate of staff turnover and it
lowered the chances of recruitment. Delays in advertising and filling posts
mean that turnover further exacerbates the vacancy problem and so the
general staffing difficulties spiral on in a self-magnifying way.
Unfortunately little is known about these extremely important problems.
A DHSS reported concluded that: "Not enough detailed knowledge is available
about the causes of staff movement and wastage, and this would repay further
investigation, particularly as more accurate identification of the factors
might have substantial implications for a more economical manpower policy"
(DHSS, 1976, paragraph 3.25). In this chapter I examine some of the
factors associated with two of these fundamental staffing problems -
turnover and vacancies - in an effort to highlight the policy options
available to central and local authorities.

In order to discuss the nature of each of these problems, their
importance for care and for policy and their prevalence, I describe a
simple conceptual schema in section 10.2 which helps clarify the various
interrelations and interconnections. The simplicity of this schema,
it should be noted, hides a fairly complex empirical problem when it
comes to "real-world estimation", and only some of the issues can be taken
up in this chapter. Employing two data sets - one for a random sample
of 82 publicly owned old people's homes, and the other covering all whole-time
supervisory and care staff employed in old people's homes during the year
ending 30th September 1977 - I examine some of the hypotheses suggested

by the schema and by the review of the literature on staff turnover and vacancies which is undertaken in section 10.3. The empirical findings are presented in section 10.4. The policy implications of each of the two studies are discussed.

10.2 Implications and Interrelations

The four principal problems faced by old people's homes - high rates of vacancies and turnover, low rates of recruitment, and shortages of high calibre candidates - are causally and contemporaneously interrelated. They are also associated with fairly similar basic causal determinants, which I later discuss under the summary heads of characteristics of the job, characteristics of the individual employees, and other factors such as characteristics of the local and national markets. Because of these similarities and because of the complexity of the interrelationships, I have illustrated these problems and characteristics schematically in Figure 10.1, together with three of the more serious implications of these staffing problems.[1] These implications - poor staff-resident relationships, broken continuity of care, and higher costs - are the three most commonly cited in the gerontological and social work literatures when discussing staffing difficulties. Most, if not all, of these consequences can eventually be traced through to deleterious influences on the quality of care and thus the quality of life enjoyed by residents. Indeed, the improvement in resident well-being, or in other inputs, should be the major criterion for identification and discussion of such consequences, whether they be direct or indirect. The connections between the various problems, characteristics and implications can be interpreted as either causation or association, and will be discussed below.

A high vacancy rate is likely to raise the turnover rate (arrow E) because of the additional strain placed on the staff that remain, and is likely to reduce the recruitment rate because potential candidates will find a home less attractive if it has a marked shortage of staff (arrow B). In the reverse direction, a high turnover rate will raise the vacancy

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[1] This schema is highly simplified and is only intended to point out the major elements of the argument. More detailed treatments of these problems are provided by, for example, Knapp et al (1981), Mercer (1979), Pettman (1975) or Price (1977).

Figure 10.1: A Schematic Interpretation of Staffing Problems

Characteristics of the job:

    pay
    hours
    promotion
    organization
    scale
    home design
    staff accommodation
    resident dependency
    services offered

Characteristics of the individual:

    age
    sex
    marital status
    basic education
    qualifications
    length of service
    others

Other factors:

    labor markets
      (demand & supply)
    location of home

A

High Vacancy Rate

J

Poor staff-resident relationships

E

D

B C

High Turnover Rate

M

F

H

K

Continuity of care broken

Low Recruitment Rate

G

L

Low Caliber Staff

Costs of care raised

rate simply because of the delays in replacing staff who leave (arrow
D), and a low recruitment rate is associated almost tautologically with
a high vacancy rate (arrow C) under the reasonable assumption that
recruitment is only attempted when posts are vacant. The relationship
running from turnover to recruitment (arrow F) is both indirect (through
vacancies) and direct, the latter following from the fact that a high
rate of turnover will give a home a reputation for hard or unpleasant
work, and thereby hinder recruitment. The fourth staffing problem
distinguished in the schema, a shortage of high calibre staff, is a direct
consequence of unsuccessful recruitment by very definition[2] (arrow G)
and is in turn often argued to precipitate a high turnover rate because
lower calibre staff, and particularly those without professional qualif-
ications, are felt to have a higher propensity to leave.[3] These four
staffing problems are often attributable in large measure to the character-
istics of the job, the employee, and the labour market listed on the left
hand side of Figure 10.1. I later specify the nature of the hypothesised
relationships summarised by arrow A and test some of them with data
for a sample of British old people's homes.

Of course, it must be emphasised that shortages of staff and
difficulties of filling vacant posts with suitably qualified and motivated
persons are important only in so far as they have implications for the
quality of care and the quality of life of residents (arrows J to M). The
importance of staff in the caring process is fundamental. It is not
surprising therefore, that staffing problems have implications both for
the quality of care (an intermediate output) and for residents' quality
of life (the most important of the final outputs). Three such implications
are noted in the schematic diagram above: poor staff-resident relationships,
discontinuities of care, and inflated costs. Arrow J illustrates
the widely held belief that staff shortages reduce the amount of time that
staff can spend with residents, both collectively and individually, and
thus reduces the final output of the home (improvements in resident well-

[2] The influential Williams Committee Report of thirteen years ago quoted
one administrator as saying: "We have put up with the mediocre for
fear we get the incompetent in their place" (Williams, 1967, p.146).

[3] We have found evidence to support this view in some related research of
turnover rates among all social workers in England and Wales (Knapp et
al, 1981). See also Kermish & Kushin, (1969), Social Policy Research
Limited (1975) & Younghusband (1959).

being). When a home is under-staffed, care and supervisory staff must spend a greater proportion of their time on domestic duties and physical care, and less on the social and psychological needs of residents (Booth, 1978; DHSS, 1976c; National Corporation for the Care of Old People & Age Concern, 1977; Townsend, 1962, pp.122-3). Poor staff-resident relationships are also often argued to be a feature of homes with a shortage of staff of the "right calibre" (e.g. see Department of Health and Social Security, 1979; Williams, 1967; Younghusband, 1978), although one could reasonably argue that this is the very definition of "poor calibre" staff (arrow M). Poor quality care will also follow from a high rate of staff turnover which breaks the continuity of care (arrow K) and thus has a potentially detrimental effect on resident quality of life. A high rate of staff turnover means a multitude of "strangers" in the home, which is both confusing and distressing to residents, lowers the quality of caring services because of a reduction in "the fund of staff skills and experience" (Booth, 1978, p.7), and generally damages the social environment within the home. Of course, there are circumstances in which turnover "infuses an agency or organisation with new blood, enthusiasm, new ways of approaching old problems" (Kermish & Kushin, 1969, p.138) and we should therefore have in mind an optimum rate of turnover, or equivalently an optimum length of service. The other consequences of a higher rate of staff turnover are the increased financial cost associated with recruitment, training and induction of new staff and the social cost (or social loss) of wasted human capital (arrow L). If staff who leave employment in an old people's home take their acquired skills and experiences to a similar social work position then there is no social loss, but currently very few leavers do this (DHSS, 1977c).

The resident, home, and social implications or costs of high rates of staff turnover and vacancies, and low rates of total and suitable recruitment, are clearly not inconsiderable. It should be an important component of policy-making for care of the elderly to examine ways in which these problems can be lessened. The myriad of causal and associative relations summarised by arrow A in the schematic diagram provides the key to effective policy in this area. I thus now turn to a discussion of the most important of these causal relations or associations

and subsequently test the existence and importance of a few of them with two data sets: one collected at the home level, and the other at the level of the individual employee.

10.3 Association and Causation

The factors which are thought or have been found to be associated with high rates of staff turnover are virtually the same as those associated with relatively large staff shortages and accentuated difficulties of recruitment. I therefore discuss these factors altogether in this section under the headings of job characteristics, personal (employee) character-istics, and labour market characteristics.[4] First, however, two controversies in the measurement and interpretation of turnover and vacancy statistics should be considered. The first of these concerns the distinction between turnover rates and wastage rates, the difference between them being that the latter excludes staff who leave a home to take up similar social work employment with another care agency or within the same agency. It is a contention of the production of welfare approach that because the major costs of staff leaving a home are to be measured in terms of final output (because of poor staff-resident relationships and discontinuities in care) and not in terms of recruiting and training new staff, then we should be concerned primarily with turnover and not just wastage. Every time a member of staff leaves employment there are shortages and potentially the quality of care will fall, no matter what his or her employment destination.

The second controversy concerns the interpretation of vacancy statistics. It has often been argued by economists working in the health care field that so called "shortages" of nurses or doctors are notional rather than actual (e.g. see Yett, 1970). The validity of this argument rests on the assumption that labour markets for, say, nurses exhibit a number of imperfections on the demand side and therefore that "shortages" are only notional (again in the economic sense). However, it can be argued that the presence of "internal" labour markets, that is, competition for high calibre staff within social services departments or caring agencies, and the importance of non-wage factors in attracting and retaining

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[4] Only the most cursory of reviews is possible here. See Mobley et al (1979), Pettman (1975) and Price (1977) for much more detailed accounts.

staff, ensure that recorded vacancies do indeed mean shortages and thus
poorer quality of care.

10.3.1 Characteristics of the Job   Of all the personal social services,
care of the frail and dependent elderly is probably the least attractive
to potential care staff, and it is this fact which lies at the very root
of many of the staffing problems faced by homes. The reasons for this
unattractiveness are not hard to identify: when care changed from
workhouse provision to old people's homes provision in 1948, a general
lack of resources meant that most of the "new" homes were simply converted
workhouses and carried with them all the stigma and depression of the old
Poor Law. Local authorities and voluntary organisations found it hard to
shake off these labels and despite massive capital programmes and ingenious
innovatory care policies, the difficulties of attracting and retaining
sufficient numbers of good quality staff persist. The policy issues that
we are addressing here, however, concern differences between homes in
staffing problems and we should therefore be interested in characteristics
of the home and the residential task which may compensate for (or
exacerbate) these general difficulties.

It is often remarked that everyone has his price, and one of the most
commonly advocated policies for correcting the imbalance between residential
homes in the staffing problems they face is to offer higher and differential
salary levels. The absolute and relative earnings from employment in old
people's homes have long been the subject of criticism and complaint,
for low pay can only reinforce the feelings of poor status and low morale
that often accompany this kind of work. Whilst salary levels may be less
important in social work than in many other forms of employment, it is
clearly stretching the altruistic motive too far when low pay means poor
quality of care. It could also be argued that the good will of staff
has been exploited by demanding long and unsocial hours - "hours which
would make an industrial worker on overtime shake his head in disbelief"
(Social Policy Research Limited, 1975, p.65). Only recently have many
social services departments and voluntary organisations paid much attention
to the problems of hours and split shifts and the potential for employing
part-time staff. Another major failing in the post-war period has been the
complete lack of an apparent career structure for residential home staff,

despite the vehement attack by Younghusband (1959) in her otherwise
very influential report. The most common way to secure promotion is for
a staff member to move to another home, thereby raising the turnover
rate.[5] Of course, promotion is only important for some employees and
we should therefore be careful not to over-emphasise this point.

Related to the career structure enjoyed by residential home staff is
the degree of autonomy and support afforded them in carrying out their
caring duties. It is important to offer good conditions of service,
acceptable and supportive senior staff, respect, communication, encourage-
ment and support from the central administration, training opportunities,
and possibly a relief team of staff to reduce shortages. Organising care
on a resident rather than a task basis has been found to improve the
morale of staff (itself an important predictor or concomitant of turnover)
and the well-being of residents (DHSS, 1976c). More generally, the character-
istics of homes as formal organisations, including the degree of central-
isation, formalisation, communication and specialisation, will have
important implications for the incidence of staffing problems (see chapter
4 above and also Kakabadse & Worrall, 1978; Raynes, Pratt & Roses, 1979).

Other characteristics of the job which may exacerbate the staffing
problems faced by old people's homes are related to the physical feature
of the homes themselves. One of the most frequently studied character-
istics is organisational scale, although there is certainly no consensus
as to whether large organisations are more or less prone to the problems
of staff turnover, vacancies and recruitment. What is clear, however, is
that the implications of an additional vacancy in a small home will be
proportionately greater than in a large home. Home size is only one
design feature of potential importance, and a number of authors have
commented on the depressing nature, for staff and residents alike, of
"obsolete, gloomy and ill-equipped buildings" (Paige & Jones, 1966, p.110).
A carefully designed home can foster resident independence and considerably
reduce the demands made upon staff. Equally important in many homes are
the standards of staff accommodation - the quality of the facilities

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[5] This well illustrates the importance of measuring staff turnover rather
than wastage.

offered and the degree of privacy they afford.[6]

The nature of the residential task, and the degree of difficulty encountered in undertaking it, will be related not only to the design of the home but also to the frailty and dependency of the residents, and to the tasks that must be performed for residents and others, such as day care clients. The increased dependency of residents of old people's homes over the post-war period has undoubtedly added to problems faced by care agencies in attracting and retaining staff, and we might also expect turnover, vacancy and recruitment rates to be related to the services offered by homes - whether they are used for day care clients, or as a centre for distributing "meals-on-wheels", or as part of a combined residential home and sheltered housing campus.

A number of these characteristics of the job are examined empirically in section 10.4.1 below.

10.3.2 Characteristics of the Individual   Turnover and recruitment rates have often been studied in relation to the personal characteristics of the staff who leave or the individuals who apply or are appointed. Those factors most commonly studied are age, sex, marital status, basic education, qualifications and length of service.[7]   These characteristics are more important for studies conducted at the level of the individual staff member, and not the home, or for studies conducted over a long period of time. Turnover rates tend to be higher among younger staff in nearly all areas of employment, tend to vary between male and female employees (but not consistently across all forms of employment) and have been found to be different for married and single employees, though again not consistently. The propensities to leave (and, contrariwise, to apply for vacant posts) are related to family responsibilities, likelihood of

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[6] See, for example, NOPWC (1961, p.75), Ministry of Health (1962, p.8), Townsend (1962, p.115), Williams (1967), DHSS (1973, paragraphs 5.21 - 5.22) and DHSS (1976c, p.17) for comments, quotes and recommendations regarding the standards of staff accommodation, and the feelings of staff.

[7] It is sometimes argued that job satisfaction is a causal determinant of turnover among staff, but it is really more useful for policy purposes to view the decision to leave as the final stage in a long process of dissatisfaction with the job (Freeman, 1978).

further employment, promotion prospects, income expectations, and so on.
Within a particular employment, it has generally been found that individuals
with more years of basic education are more likely to leave, and significant
differences in turnover and application rates have been recorded for
staff with different social work qualifications. The propensity to leave
has generally been found to be inversely related to the length of service
in the present employment. Finally, we should mention some other personal
factors, such as social status, interests, personal histories and expectations,
which have been found to be related to turnover and recruitment indicators.
A few of these characterisfics of the individual employee are examined
empirically in section 10.4.2 below.

10.3.3 External Characteristics   By external characteristics, I mean
factors over which neither the employer nor the employee can exercise
control, and foremost among them are aspects of the relevant labour markets
and features of the area in which the employing agency is located. It is
first necessary to identify the extent of the relevant labour market and,
in Britain at least, it is often argued that the markets for manual,
domestic and catering staff are esssentially local, whilst the markets
for supervisory and care staff are national, or at least regional.
The attractiveness of different local authorities and areas may be an
important determinant of an authority's or home's ability to attract
and retain high calibre staff (Bebbington & Coles, 1978; Collison &
Kennedy, 1977; Davies et al, 1971). The opportunities for alternative
employment (measured perhaps by general vacancy or unemployment rates),
the socio-economic characteristics of the population and the siting of a
home in relation to staff accommodation, modes of public transport, and
so on, may also be important determinants of turnover, vacancy and recruit-
ment rates (Parker, 1969; Social Policy Research Limited, 1975; Sumner
& Smith, 1969; Townsend, 1962; Williams, 1967; Younghusband, 1959).

10.4 Empirical Examinations of Vacancies and Turnover

10.4.1 Vacancy and Turnover Rates at the Home Level, 1970   Data for the
first study were collected in the 1970 Census of Residential Accommodation
(DHSS, 1975). A total of 82 purpose-built homes for the elderly were
used for the analyses. Originally I had worked with a random sample
of 200 publicly-owned homes, all located in urban areas outside London,
as described earlier in this thesis. However, I found that staffing

policies and problems differed markedly between purpose-built homes, former
workhouses, and homes converted from private residences. These
differences, coupled with nationwide policies to close all homes which
are neither purpose-built nor reasonably modern, suggested that attention
be focused on the smaller sample.

The Census questionnaire distinguished four categories of staff -
supervisory, care, domestic and secretarial - and the analyses of the
previous chapter confirmed that these categories of staff are distinct
in so far as they perform different tasks within the home and respond
differently to variations in home design and resident dependency. From
the questionnaires it was possible to construct one turnover variable -
the number of people who had held the post of Officer-in-Charge during
the five years preceding Census day (30th April 1970), and three vacancy
variables - the proportions of supervisory, care and domestic staff
complements vacant on Census day. Supervisory staff numbers include the
officer in charge. The analytical procedure was to use these four factors
as dependent variables in four multiple regression analyses, with the
independent variables or "predictors" being selected and constructed from
other questionnaire items and reflecting home design and size, resident
characteristics, non-residential services, home siting, staff accommodation,
and facilities, and some aspects of caring practices. Obviously, many
of the causal factors set out in the previous section are not included
here. Future research should ideally rectify these omissions. Whilst
the problems of staff turnover and vacancies in the British personal
social services have been commented upon on numerous occasions, and
occasionally surveyed, there do not appear to have been any attempts to
analyse, or indeed quantify, the absolute and relative importance of the
various causal factors. Previous surveys and commentaries on these problems
are reported by Cmnd 5076, DHSS (1976), Rowntree (1947),
Social Policy Research Limited (1975) and Williams (1967), as well as
by most of the annual reports of the Ministry of Health and the DHSS.

For each of the four staff problem variables in turn (the single
turnover measure, and the three vacancy indicators) a multiple regression
analysis was conducted. Independent variables, or "predictors", were
included or excluded from equations according to their individual statistical

significance. Prior theoretical considerations also dictated the pattern of inclusion and exclusion to some extent, and the underlying aim was to "explain" as much of the observed variation in the staffing problems as possible.[8] The final forms of the four equations are set out below, and are briefly discussed in turn. Only the final equations are reported, although a number of alternative equations were estimated and examined for each of the four dependent variables.

(a) Officer-in-charge turnover. The number of people who have held the post of Officer-in-Charge in the five years preceding Census day is equal to:

```
1.366* + 0.525*  x no. of buildings without all amenities
        + 0.065*  x average no. of residents per sitting room
        - 0.605   if home is "well sited" relative to amenities
        - 0.681   if home is "moderately sited" relative to amenities
        + 0.228   if accommodation for OIC is self-contained
        - 0.304*  x no. of sitting /common rooms for other staff
        + 0.779   x supervisory staff vacancy proportion
        + 5.014** x care staff vacancy proportion
```

The R^2 coefficient for this equation was 0.277; the asterisks denote significance at the 90% level (*) and the 99% level (**). This turnover equation for the officer-in-charge (OIC) is to be interpreted as an associative, and not a causal, relationship showing the features of the home (etc) which are related to, but not predictors of, the turnover rate. Among the associated factors are the supervisory and care staff vacancy proportions; these are included simply on statistical grounds and probably capture the influences of omitted common determinants. The equation indicates that OIC turnover has been greater in homes with a greater number of buildings without all amenities, in badly sited homes, in homes which had self-contained accommodation for the OIC (a surprising but not statistically significant result), in homes with a smaller number of sitting rooms or common rooms for other staff, and in homes which are currently suffering higher supervisory and care shortages. The overall association, as indicated by the R^2 value, is significant but nevertheless weak.

(b) Supervisory staff vacancies. In contrast to the turnover equation above,

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[8] The form of the equations was also determined in part by the presence or otherwise of such econometric problems as multicollinearity and heteroscedasticity. These problems do not characterise the final equations reported here.

the three vacancy equations can all be interpreted unambiguously as <u>causal</u>
relationships, and of immediate relevance for policy. The proportion of
the supervisory staff complement that was vacant on Census day is equal
to:

$$
\begin{aligned}
0.223** &+ 0.003* &&\text{x no. of resident places normally available} \\
&+ 0.059 &&\text{x no. of buildings without all amenities} \\
&- 0.103 &&\text{x proportion of beds on upper floors} \\
&- 0.007* &&\text{x no. of double bedrooms for residents} \\
&- 0.038** &&\text{x average no. of residents per WC} \\
&- 0.002* &&\text{x no. of midday meals for non-residents} \\
&+ 0.049** &&\text{x no. of single bedrooms for other staff} \\
&+ 0.059** &&\text{x no. of kitchen/utility rooms for other staff} \\
&- 0.004* &&\text{x resident-supervisory staff (complement) ratio.}
\end{aligned}
$$

The R^2 coefficient for this equation was 0.362, and the asterisks again
indicate statistical significance at the 90% (*) and 99% (**) levels.
Supervisory staff include the officer-in-charge and his or her deputies,
and we would expect vacancy rates to be related to all manner of char-
acteristics of the home, its residents and its practices. From the
equation we see that homes suffering greater shortages of supervisory
staff tended to be larger (as measured by the number of resident places),
to have more buildings without all amenities, to have fewer beds on
upper floors, fewer double bedrooms for residents and fewer WCs per
resident, to be responsible for preparing fewer meals for delivery to
social services clients in their own homes, to have more single bedrooms
and kitchens/utility rooms for non-supervisory staff, and to have a lower
ratio of supervisory staff to residents. Not all of these causal
influences are exactly as might have been expected on the basis of the
review of previous findings and hypotheses, and not all of them attain
90 per cent statistical significance. Nevertheless, it can clearly be
seen that larger homes are more prone to shortages and that certain
features of design are unattractive to staff. Furthermore, homes which
act as a centre for the preparation and delivery of midday meals to
elderly people living in the surrounding community appear to be more
attractive to supervisory staff. The final influence listed above has
a most interesting likely interpretation: homes with a higher planned
number of residents per supervisory staff member (as measured by
complement) are attractive,perhaps implying that supervisory staff actually
welcome a greater degree of responsibility.

(c) <u>Care staff vacancies</u>. Imber (1977, p.26) found that the duties of

care staff were to keep residents "clean and tidy ..., whilst attempting
to provide for their social and psychological needs". It is therefore
reasonable to expect care staff vacancy or shortage rates to be related
to resident dependency and to the ease or difficulty of providing for
their needs. From the multiple regression analysis the proportion of
the care staff complement vacant on Census day was given by:

$$
\begin{aligned}
0.436** &- 0.184 && \text{x no. of resident places normally available} \\
&- 0.030* && \text{x no. of buildings without all amenities} \\
&+ 0.001** && \text{x no. of single bedrooms for residents} \\
&- 0.296** && \text{if there is sufficient sitting space for all residents} \\
&- 0.002 && \text{x no. of day care attendances in previous week} \\
&- 0.001* && \text{x no. of midday meals for non-residents} \\
&+ 0.034* && \text{if home is "well sited" relative to amenities} \\
&- 0.024** && \text{x no. of kitchens/utility rooms for staff} \\
&+ 0.002 && \text{x resident-care staff (complement) ratio.}
\end{aligned}
$$

Overall, this was the best equation of the four, for the R^2 coefficient
of 0.522 implies that the nine included independent variables or predictors
together "explain" 52.2 per cent of the observed care staff vacancy rate.
Most of the influences are not difficult to interpret, although again
some of them are not in the expected direction. One or two points are
worth noting however. Firstly, it can be seen that resident dependency
does not influence the care staff vacancy proportion. However, the highly
significant influences of the third and fourth variables in the list
suggest that poorly designed homes are certainly unattractive to care
staff, whilst the influences of the fifth and sixth variables suggest
that multi-purpose homes (that is, those providing day care and meals
services) are attractive. Finally, in contrast to supervisory staff who
appeared to welcome the responsibility of having more residents in their
charge, care staff shortages were greater in those homes with higher
planned resident-care staff ratios.

(d) Domestic staff vacancies. The final regression equation for the
proportion of the domestic staff complement vacant accounts for 37 per
cent of the variation in this proportion (R^2 = 0.370). The proportion is
equal to:

```
0.137* + 0.001*    x no. of beds on upper floors
       + 0.040     x proportion of beds on upper floors without lift
       + 0.001     x no. of single bedrooms for residents
       - 0.004*    x no. of double bedrooms for residents
       - 0.005*    x average no. of resident per sitting room
       + 0.044**   if there is a room reserved for residents' private use
       - 0.122*    if home is "well sited" relative to amenities
       - 0.106*    if home is "moderately sited" relative to amenities
       + 0.016     if deputy OIC has kitchen for own exclusive use
       + 0.029**   x no. of kitchens/utility rooms for staff.
```

Imber's (1977) examination of the duties performed by domestic staff revealed that these staff quite simply "kept the home clean and tidy" (p. 26), and we can thus immediately understand a number of the relationships in the above equation. Indeed, the first six influences listed above can all be interpreted in terms of the difficulties that certain features of home design cause domestic staff in pursuing their duties within the home. The two "siting" variables which follow indicate once again that it is badly sited homes that suffer most from staff shortages. The siting "gradient", given by the relative sizes of the coefficients, is as we would expect. The final two influences are not immediately interpretable, but are retained in the equation because these staff accommodation characteristics may reflect other characteristics of homes.

(e) Some policy implications. The conclusions and tentative policy implications of this first empirical study may now be summarised. Given the number of potentially important determinants of staff turnover and vacancy rates that were not examined in the analyses, the results are generally very encouraging. Nevertheless, it is important to remember that because of these omissions, some of the influences reported here may exaggerate the true influences. These comments notwithstanding, we may draw the following conclusions and policy implications from the research:

1. Many features of home design are important determinants of vacancy and turnover rates, although the directions of influence are not always as one would expect from previous research and from the comments of previous writers. Domestic staff vacancies are the most susceptible to variations in design. Many of the design changes which would alleviate some of the staffing problems faced by old people's homes have already been incorporated into policy recommendations (as described in chapter 4).

2. The dependency characteristics of residents have no effect on staff vacancy or turnover rates.

3. Homes which offer day care services or provide meals for elderly people living nearby have fewer staffing problems; multi-purpose homes may be more attractive to supervisory and care staff.

4. Homes which are badly sited in relation to amenities for residents, such as shops, church, pub or transport, have much greater shortages of domestic staff. Care and supervisory staff shortages are not related to siting. This finding appears to support the oft-voiced opinion that the labour market for domestic staff is local, whilst the market for care and supervisory staff is national (Age Concern & NCCOP, 1976; DHSS, 1976c; Townsend, 1962).

5. As with home design features in general, many characteristics of the accommodation and facilities provided for staff were significantly related to turnover and vacancy rates, and many of the empirical influences were not in the expected direction. The influences of both home design and staff accommodation factors are indirect and clearly more research is needed to identify the causal relationships.

6. The greater the responsibility accorded supervisory staff (as measured by the average number of residents per member of the supervisory staff complement) the more attractive the home. In contrast, care staff find homes with higher resident-care staff ratios to be less attractive.

7. There was little or no substitution between supervisory, care and domestic staff in British old people's homes in 1970 (cf., chapter 9).

8. More research is needed on the causes of staff turnover and vacancies. This research should be conducted at, or take account of, three levels of argument: the individual level, the home level, and the area or territorial level.

10.4.2 Individual Propensities to Leave, 1976-1977   The data used for the second study were collected by the DHSS from all English and Welsh local authorities. Information was requested for all whole-time staff (wardens, matrons, deputy wardens, deputy matrons, trainee care staff, and other care staff excluding care assistants) of residential accommodation (under sections 21 and 26 of the National Assistance Act 1948 and the National Health Service Act 1946) for the elderly, elderly mentally infirm and the younger physically handicapped including the blind, the deaf and the epileptic. The information referred to all such staff employed during the year ending 30th September 1977, including all staff

who left employment during that year. These staff returns from local
authorities to the DHSS were the third such annual collection and were
the most recent available for the present analysis. My examination of
individual propensities to leave focuses upon staff of residential homes
for the elderly only.

In table 10.1 some of the characteristics of these staff of old
people's homes are presented. Three types of staff are distinguished -
officers-in-charge (hereafter OICs), deputy officers-in-charge (hereafter
Deputy OICs) and Care Staff - and separate tabulations are made for staff
in post on 30th September 1977 ("stayers") and staff who left during the
year ending 30th September 1977 ("leavers"). Many of the characteristics
vary markedly in their incidence between the three grades of staff and
between stayers and leavers. For example, OICs and Deputy OICs were older,
on average, and were also more likely to have nursing or social work
qualifications than care staff. A higher proportion (roughly one in four)
of OICs was male as compared with roughly one in seven Deputy OICs and
Care Staff. Comparing stayers and leavers there are marked differences
in age (particularly for OICs), basic education and social work qualifications.
It is thus already possible to see that the arguments of previous studies
of staff turnover in the personal social services, and in related and
similar professional occupations, which have emphasised the predictive
importance of such employee characteristics as age, sex, education and
professional qualifications are likely to be relevant in the present
context. However, tabular comparisons are insufficient for examining the
influence of, say, age on the probability of leaving (or propensity to
leave) for we must examine this influence simultaneously with the influences
of sex, educational qualifications, professional qualifications and so on.
This may be accomplished in the normal way through multivariate analysis,
taking the dichotomous variable:

$$Y = \begin{cases} 0 \text{ if individual still in post on 30th September 1977 ("stayer"), and} \\ 1 \text{ if individual left employment during year ending 30th September} \\ \qquad 1977 \text{ ("leaver"),} \end{cases}$$

as the dependent variable, variations in which are to be explained by
variations in sex, age, educational and professional qualifications. Dummy
variables for each of these explanatory variables were defined; for

Table 10.1: Characteristics of whole-time staff of old people's homes for year ending 30th September 1977

	Officer-in-charge		Deputy O-i-C		Care Staff	
	Stay[1]	Leave[2]	Stay[1]	Leave[2]	Stay[1]	Leave[2]
Number of persons	2775	266	2815	400	1990	342
Sex						
% male	25.5	27.8	13.5	13.2	13.2	15.5
Age						
% aged under 25	0.0	0.4	2.2	4.3	5.3	6.4
% aged 25-29	1.6	0.8	5.8	8.2	6.7	9.6
% aged 30-34	4.3	4.9	6.7	10.2	7.5	10.2
% aged 35-39	8.1	7.1	8.2	8.5	10.7	11.7
% aged 40-44	11.2	10.2	13.0	9.2	13.5	13.5
% aged 45-49	14.5	11.3	17.3	14.2	16.2	11.7
% aged 50-54	21.3	10.5	19.1	14.5	17.9	12.3
% aged 55-59	26.2	17.3	19.7	14.8	16.9	12.3
% aged over 60 and over	12.9	37.5	8.0	16.0	5.1	12.3
Basic Education[3]						
% with degree[4]	0.1	0.8	0.4	1.2	0.8	1.5
% with Univ. diploma[4]	1.8	1.5	1.0	3.3	1.1	1.5
% with > 2 'A' levels	1.2	1.9	1.0	1.7	1.7	2.3
% with > 5 'O' levels	8.0	9.8	7.5	6.5	6.4	11.1
% with none or above	88.9	86.1	90.1	87.2	90.0	83.6
Qualifications[3]						
% Cert.in Res.Soc.Wk.	6.4	6.8	1.7	2.3	1.0	0.6
% Nursing qual'n	42.3	41.7	32.7	36.0	26.6	33.6
% Blind qual'n	0	0	0.1	0	0	0.3
% Deaf qual'n	0	0	0	0.2	0	0.3
% none of above	51.2	51.5	65.6	61.5	72.4	65.2

Notes: 1. Staff in post 30th September 1977
2. Leavers during year ending 30th September 1977
3. For staff with more than one qualification only that which appears first in the list is recorded
4. Or equivalent qualification.

example a sex dummy was computed as:

$$X_1 = \begin{cases} 1 & \text{if individual staff member is male, and} \\ 0 & \text{if individual staff member is female} \end{cases}$$

Similarly, age dummies were defined as

$$X_2 = \begin{cases} 1 & \text{if individual staff member is aged under 25,} \\ 0 & \text{otherwise,} \end{cases}$$

$$X_3 = \begin{cases} 1 & \text{if individual staff member is aged 25-29,} \\ 0 & \text{otherwise,} \end{cases}$$

. . .

$$X_9 = \begin{cases} 1 \text{ if individual staff member is aged 55-59,} \\ 0 \text{ otherwise.} \end{cases}$$

A dummy variable for staff aged 60 and over was not needed as its inclusion in an equation with the other eight age dummies would render the set of explanatory variables perfectly collinear and make estimation impossible.[9]

A number of different specifications of equation were estimated for each of the three staff grades, using logit analysis[10] rather than the inappropriate multiple regression technique. With a dichotomous dependent variable the error term in a multiple regression analysis is no longer homoscedastic so that ordinary least squares estimates become inefficient and the usual tests for statistical inference (the t- and F-tests) are no longer appropriate. Furthermore, "the fitted relationship is exceptionally sensitive to the location of explanatory variables and ... the usual tests of significance for the estimated coefficients do not apply. Further, multiple R^2 no longer is meaningful and estimated standard errors are not consistent" (Nerlove & Press, 1973). The regression residuals are also no longer normally distributed, and there is no guarantee that the predicted values of the dependent variable (which are to be interpreted as probabilities of leaving) actually lie within the range from 0 to 1 inclusive. Econometricians have sought alternative linear techniques to ordinary least squares but none has so far proved to be entirely satisfactory for they have not provided either efficient or unambiguously determined estimates. The search has thus widened to include nonlinear techniques.

Let p_i denote the probability that individual i leaves his or her job (and $1-p_i$ denote the probability of staying). We also use the notation X_j to denote the jth influence, such as age, upon the probability of leaving (j = 1, 2, ..., m). The probability p_i is defined, as is usual,

---

[9] We actually had information on the exact age of each staff member, but including the single (continuous) age variable (and also exponents thereof) was not as powerful as including the eight age dummies formed for the age strata.

[10] See, for example, Ashton (1972) and Dhyrmes (1978).

as the ordinate of a cumulative distribution function:

$$P_i = F(\sum_j \beta_j X_{ji}),$$

where $F(.)$ is some cumulative distribution function, X_{ji} is the value of jth variable for the ith individual, and β_j is the (unknown) coefficient multiplying variable X_j. (All summations are over $j = 1,2,\ldots,m.$). As above, using Y to denote the dichotomous variable describing the individual's decision to leave or stay (so that $Y_i = 1$ if the individual leaves, and $Y_i = 0$ if he or she stays) then we have:

$$Pr(Y_i=1) = F(\sum_j \beta_j X_{ji}) \quad \& \quad Pr(Y_i=0) = 1-F(\sum_j \beta_j X_{ji})$$

The function $F(.)$ must now be specified and a wide choice is available (Ashton, 1972). A popular choice is to use the cumulative distribution function of the standardised logisitic distribution:

$$P_i = (1+\exp(-\sum_j \beta_j X_{ji}))^{-1}. \quad (*)$$

The logit of P_i is then defined as

$$logit\ (p_i) = \ln(p_i/1-p_i) = \sum_j \beta_j X_{ji}.$$

To estimate the logit function I used a maximum likelihood method (using a quasi-Newton numerical minimisation technique on the negative of the log-likelihood function).[11]

The three "final" specifications of equation selected from the array of alternatives are set out in table 10.2. These final specifications were selected on the usual criteria of parsimony and statistical significance. The estimated β_j and the corresponding asymptotic t-statistics are tabulated, and allow the computation of exact probabilities of leaving for staff with given characteristics, using the formula $(*)$ above. Basically, the larger a positive estimated β coefficient the higher the probability of leaving, and the larger a negative coefficient the lower the probability of leaving.

It is useful to compute a couple of illustrative probabilities from the figures in table 10.2. The predicted probability, or more accurately the actual probability for the year 1976-77, for an officer-in-charge who is female, a University graduate, holder of the Certificate in Residential

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[11] This logit analysis programme was kindly made available by Ben Knox.

Table 10.2: Logit Analyses for Predicting Propensities to Leave

	Officer-in-Charge		Deputy O-i-C		Care Staff	
	$\hat{\beta}$	t	$\hat{\beta}$	t	$\hat{\beta}$	t
For all staff	-1.320	10.5	-1.303	8.95	-0.734	3.53
if male					0.116	0.69
if graduate (Univ. or CNAA)	2.912	2.87	0.996	1.76	0.600	1.12
if holder of Univ. diploma or equiv.			1.188	3.43		
if holder of 2 or more 'A' levels	0.461	0.93	0.409	0.93		
if holder of 5 or more 'O' levels	0.304	1.34			0.492	2.42
if holder of Cert. in Res. Social Work	0.384	1.41	0.180	0.47	-0.694	0.92
if holder of Nursing qualification[1]	0.054	0.39	0.136	1.18		
if unqualified[2]					-0.283	2.20
if aged under 25	1.320	0.93	-0.172	0.53	-0.844	2.76
if aged 25 - 29	-1.926	2.62	-0.479	1.96	-0.680	2.48
if aged 30 - 34	-1.048	3.28	-0.331	1.47	-0.618	2.34
if aged 35 - 39	-1.286	4.76	-0.697	2.98	-0.817	3.22
if aged 40 - 44	-1.238	5.28	-1.063	4.74	-0.871	3.56
if aged 45 - 49	-1.388	6.19	-0.921	4.61	-1.180	4.72
if aged 50 - 54	-1.836	8.08	-0.990	4.99	-1.224	4.96
if aged 55 - 59	-1.516	7.95	-1.012	5.11	-1.161	4.70
Sample size	n = 3041		n = 3214		n = 2332	

Notes
1. State Registered Nurse, Registered Nurse for the Mentally Subnormal, Registered Mental Nurse, Registered Sick Children's Nurse, State Enrolled Nurse, State Enrolled Nurse (Mental), State Enrolled Nurse (Mentally Subnormal).
2. That is, without Certificate in Residential Social Work, Nursing Qualification, Qualification for work with the blind, or Qualification for work with the deaf.

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Social Work awarded by the CCETSW and aged under 25, is computed as follows: adding all the relevant estimated coefficients (-1.320 + 2.912 + 0.384 + 1.320) gives 3.296; the negative exponential of 3.296 is 0.0370; adding 1 gives 1.0370, the reciprocal of which is 0.964. This implies that an officer-in-charge with these specified characteristics had a probability of 0.964 or 96.4% of leaving before the end of the year. This is, of course, an extremely high probability but is not really surprising given the rather unusual characteristics posited. A second and perhaps more likely example would concern, say, a care staff member who is male, has less than 5 '0' levels, is unqualified (by the definition assumed in the analysis, described in note 2 to table 10.2), and is aged 28. The same procedure as for the first example gives a probability of 0.156 or 15.6% of leaving.

From table 10.2 it can be seen that the propensity to leave is the same for male and female OICs and Deputy OICs, and slightly higher for male Care Staff. Previous studies in other modes of employment have most frequently found females to be more likely to leave than males (cf., Pettman, 1977) and this was also the case in two studies of field social workers (Webb, 1973; Knapp et al, 1981). Kadushin (1976) has argued that males are favoured in terms of salaries, promotion chances and prestigious appointments in female-dominated professions, but impressionistic evidence (in the absence of anything more reliable) would suggest that this was unlikely to be particularly important in the case of residential care of the elderly. Further information (which was not available) on the marital status and number of dependents for each staff member would have allowed a testing of the influence of the assumed pressures on women to conform to social expectations of the female role upon propensities to leave employment (Mercer, 1979, p.105).

Five levels of educational attainment were distinguished in the DHSS data collection and these allowed the definition of four dummy variables. Each variable indicates the highest qualification attained, so that (for example) graduates would not be included amongst those having 5 or more '0' lvels or 2 or more 'A' levels. Graduate staff members and holders of University diplomas (or equivalent) had the highest propensities for all three grades of staff, whilst staff whose highest educational

qualification was less than 5 'O' levels had the lowest propensities to
leave. The conventional arguments that a higher level of education raises
career aspirations and expectations (March & Simon, 1958, p.96) and that
the demand for the better educated outstrips the supply (Price, 1977)
may explain these results,[12] particularly for an employment regarded by
many people as unskilled and unattractive. The same arguments about
aspirations, expectations and labour market pressures have been voiced
with regard to the more highly skilled or, perhaps more accurately, the
more highly qualified professional staff. The Certificate in Residential
Social Work is held by very few staff of old people's homes (only 3.2%
of the 8588 staff covered by the present study) and the demand for staff
with such a qualification probably greatly exceeds the available supply.
This may make it easier for such staff to obtain new social work
appointments which in turn may make turnover amongst such staff slightly
higher. However, whilst Certificate holders are more likely than other
OICs and Deputy OICs to leave employment, Care Staff with this qualification
are the least likely to leave. In all cases the relationships are weak,
but they seem to imply that OICs and Deputy IOCs with the Certificate in
Residential Social Work or with a Nursing Qualification have higher
propensities to leave than their unqualified counterparts, whilst the most
likely Care Staff to leave are those with a Nursing Qualification.

The eight age dummies nearly all appear to be important predictors
of the propensity to leave employment in an old people's home.[13] With
the exception of officers-in-charge under the age of 25, of which there was
only one in the entire sample, the most likely staff to leave are
those aged 60 and above, the majority of them probably leaving through
retirement. Whilst the estimated coefficients on the eight age variables

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[12] Notice, however, that Kakabadse & Worrall (1978) found no significant
differences in job satisfaction attributable to differences in educational
attainment in their study of the staff of eight social services departments.

[13] Unfortunately, data on length of service were not available for staff in
post on 30th September 1977 but were available only for staff who left.
This has meant that length of service variables cannot be included among
the predictors. Age and length of service are important predictors
of the propensity to leave, both as separate factors and in combination,
so that the enforced omission of length of service may distort the
influences of the age variables.

do not increase or decrease strictly monotonically, the <u>general</u> trend is
for the propensity to leave to decrease with age up to age 59.
Thereafter, as said before, a lot of staff leave having reached the retire-
ment age. Younger staff tend to be more mobile, both occupationally
and geographically, and more ambitious.

The analyses reported in this subsection suggest a number of conclusions.
However, it should first be noticed that, as with the previous analysis
(section 10.4.1), the enforced omission of some potential predictors
may have exaggerated the true influences of the included predictors
(age, sex, education, and professional qualifications). Another source
of reservation may be the inability to distinguish between voluntary and
involuntary departures from employment ("quits" and "layoffs" in the
conventional jargon). However, during the period 1976-77 the residential
care sector for the elderly was not contracting and many homes had
difficulty in obtaining their full complements of staff (Booth, 1978)
so that it would not appear to be unreasonable to interpret the majority
of departures as voluntary (i.e., as "quits"), particularly as the analysis
here is concerned only with whole-time staff. The following conclusions
may tentatively be drawn:

1. The age, educational attainment and professional qualifications
of old people's homes' staff are significant predictors of the propensity
to leave employment. Studying turnover at the level of the individual
member of staff thus appears to offer some useful information to the
policy-maker and is worthy of further examination with a more detailed
data set.

2. There do not appear to be significant differences in turnover
rates between male and female employees once the influences of age,
educational attainment and professional qualifications have been taken
into account.

3. Staff with higher levels of educational attainment had higher
propensities to leave.

4. Professional qualifications (the Certificate in Residential
Social Work and a variety of Nursing qualifications) were not particularly
important in the prediction of staff turnover, although some differences
were observed.

5. Younger staff were more likely to leave employment than older staff, with the notable exception of those aged 60 and above (who had thus reached retirement age).

10.5 Conclusion

Policies aimed at reducing staff turnover and vacancy rates in old people's homes are suggested by the results presented here. Reducing these rates would reduce the search costs of employers, reduce the demands on the very limited resources currently available for training residential care staff, reduce the demands made on officers-in-charge to train and establish new staff, improve the continuity of care delivered to often very vulnerable residents, and generally improve the quality of care services offered. Of course, policies to reduce the turnover and vacancy rates are themselves not costless, but it seems unlikely that the benefits of reducing these rates are yet outweighed by the costs of implementing these policies.

Chapter 11   TOWARDS A FULL SOCIAL EFFICIENCY ANALYSIS

11.1 Social Efficiency and Care of the Elderly

The discussion of efficiency in chapter 6 emphasised the desirability
of moving towards a collection of data on care services which covered
the social opportunity costs of all resource inputs, the social
valuations placed on the various final outputs, and the influences of
the non-resource input factors. Such a data collection accords with,
builds upon, and fully exploits the production relations or production
of welfare perspective on care. The aim of this concluding chapter is
now to draw together the earlier discussions and analyses of this thesis
by taking a closer look at one mode of efficiency analysis which is designed
for use with such a data collection. This technique - cost-benefit
analysis (hereafter CBA) or its close relative, cost-effectiveness analysis
(CEA) - not only provides a useful linking summary of the thesis but
also allows the consideration of once of the most frequently posed
questions in the social care field: Do we prefer domiciliary care to
residential care? This question is deliberately vague and ambiguous as
I wish to consider a number of variants of this general theme, and in fact
very many of the policy questions so subsumed are themselves vague and
ambiguous. Despite the large number of policy documents and academic
studies which have posed this question in one or more of its many
forms, there have been relatively few serious attempts to answer it, and
unfortuntely the majority of these attempts have been inadequate on a
number of counts.[1]

Cost-benefit analysis is, by repute, neither a simple nor an
uncontroversial mode of analysis. It is therefore valid to question the
wisdom of using it to answer such an apparently simple question as that

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[1] Plank (1977, paragraph 2.1) recently wrote: "Given the widely held
assumption that the main modes of service provision are options for
individual dependent elderly, it is, perhaps, surprising that so little
work has been done to increase our knowledge about their relative costs
and benefits. Unfortunately, prejudice against residential institutions
has resulted in the almost aggressive assertion that costs are not
relevant (anyway it is shown that residential care is more expensive!)
and that the relative benefits are already known. This seems to me to be.
a most dubious proposition."

posed in the opening paragraph. Two points should be noted, however.
First, an adequate answer to the question of the relative efficiency of
domiciliary versus residential care requires a consideration of all the
non-resource and resource inputs as well as the final outputs. Second,
cost-benefit analysis is well suited to such a task. Most previous
considerations of this policy question have, as we shall see below
(section 11.3), ignored or paid inadequate attention to either the
inputs into care of the outcomes of care. Thus, for example, a PSSC
report seemingly implied that costs were only relevant when services
were not constrained by resources: "Although the relative costs of
alternative forms of provision should be secondary to the relative benefits
to be derived by the individual concerned, cost considerations are essential
in times of shortage in order to ensure the best use of scarce resources"
(PSSC, 1975, paragraph 59). The fact that resources are always scarce seems
to have escaped the authors of this influential report. On the other
hand, Williams (1978), among others, has recently lambasted other policy
makers for their unbending reliance on annual budgets and narrow departmental
costings. The routinely available cost information produced by social
services departments and other bodies is useful up to a point, but becomes
dangerous when used in isolation from other (social) costs and
outputs. A technique such as CBA is essential for forming policy guidelines
in an area where so many of the resource implications (or costs) are felt
by persons or groups other than the producer or supplier, and where the
outputs are many in number and not traded on the market.

Cost-benefit analyses have most frequently been conducted in
evaluations of new or proposed projects or policies. Among the better
known of the British CBAs are those for the (proposed) Third London
Airport and for the (under construction) Victoria Underground line. In
the social policy arena, too, CBAs have most commonly been employed in
examinations of new practices. Established policies or practices are
rarely subjected to such rigorous evaluation procedures, a characteristic
which sometimes automatically builds conservatism into social policy (Booth,
1978). Using the CBA framework to examine the relative merits and demerits
of domiciliary and residential services may thus usefully make explicit
some of the implicit decisions of policy-makers, and there is more than

enough evidence to suggest that these decisions are in need of explication.[2]
In this chapter I therefore want to briefly describe the CBA and CEA
methodologies (section 11.2) and then use these methodologies

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[2] It is very interesting indeed to quote the quetioning of DHSS witnesses
to the House of Commons Expenditure Committee (1971-72):

Q14: The DHSS paper "does not give us any picture of how much individual
services cost us in relation to old people, or how far this pattern has
altered over the years. Is this something which cannot be worked out or
obtained?"

Ans: "This is very difficult. ... Our various estimates and financial reurns
are based on services, they are not based on the users of the services.
... I must admit we ourselves do not know how much is spent on these ..."

Q17: "The difficulty to my mind is this: if you cannot identify how
much the particular services cost, and you cannot work out opportunity
cost, it is very difficult to know how you can as rationally as possible
decide on the allocation of resources between one aim and another aim,
which is what we are basically concerned with. Is it not really pretty
important to get these function costings clear?"

Ans: "It is certainly the difficulty. ... We have barely begun on its
ultimate manifestation which is, of course, the measurement as far as you
can of the outputs as well as the inputs, of the benefits as well as the
resources you put in, and the relationship of those outputs to the inputs
you put in. Until you have worked your way right through that, until
you have made choices as between measured inputs and delivery of services
and costed in that sense, you are not really making the ultimate sophist-
icated choice. That can only be done when you finally relate some
measure of benefits to inputs."

Q18: "Would you agree that at the moment, on the basis of information in
this paper, we cannot even begin to discuss things in terms of opportunity
cost?"

Ans: "I would certainly agree that we have not got a completely satisfactory
system of statistics and returns that make us absolutely sure of choice,
but we have got a great deal of information and accumulated experience
and in certain areas we can cost pretty accurately ..."

Q22: "But we do know, and it does help us to know, what is the average
cost of keeping someone in an institution and the average cost of having
someone looked after in his own home by a home help. We know that one
is ten times more expensive than the other, which helps rational choice,
does it not?"

Ans: "... There may be very compelling reasons why, wherever possible,
we should maintain people in their own homes, but it does not necessarily
follow that it is the cheapest way of doing it either in terms of money
or in terms of skilled manpower. We do not know in many cases. This
is the area we want to illuminate with real facts and research and
we want to include in it not merely the cost in resource terms, the
cost in financial terms, or the cost in terms of skilled nursing or
medical manpower, or whatever, but also the humanitarian aspect of this,
the preference, the social good, the personal feelings of the people
concerned. That also must be evaluated in whatever evaluation we do".

as a framework to guide a discussion of domiciliary and residential care
for the elderly. The background to such a discussion or examination is
described in section 11.3.1 and provides a very good example of one of the
more pervasive characteristics of the post-war period - the shifting
balance of pressure exerted by the so-called humanitarian and organisational
perspectives of old age as a social problem. The subsequent subsections
of section 11.3 then collate the available evidence on domiciliary and
residential services in the manner suggested by the CBA and CEA method-
ologies. No <u>actual</u> CBA or CEA is attempted, for this would require a
data collection which was well beyond the scope of the present study,
but it is hoped that the discussion will provide a useful basis for
any such research. Of more immediate importance and utility, the
discussion highlights the good and bad points of previous studies of the
relative advantages and disadvantages of domiciliary and residential
care. In so doing, the discussion illustrates again the usefulness
of the production relations approach to policy-making in social care.

11.2 The Principles of Cost-Benefit and Cost-Effectiveness Analysis

In principle, CBA is simplicity itself. The costs of a project are
compared with the benefits; if the latter exceed the former the project
is worth undertaking. If two or more projects are vying for selection,
the project with the greatest excess of benefits over costs is to be
preferred.[3] Benefits and costs which fall to or upon any member of
society are to be included and are to be measured in some common units
to allow comparisons to be made. Unfortunately it is this simplicity
which has been the cause of so much difficulty. A mode of "project
appraisal" or "economic decision-making" with so much inherent appeal will
inevitably capture the imagination of the hard-pressed policy-maker
starved of information. In reality, CBA is a complex tool, based, some
would argue, on somewhat shaky theoretical grounds and harbouring a whole
host of practical problems and potential pitfalls. Some of the research
studies erroneously labelled as cost-benefit analyses have been roundly
and justifiably criticised. Economists, though sometimes given to

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[3] If the two are not strictly competitive a combination of them may be more
efficient. Such "decision rules" are discussed at greater length
below.

verbosity, emphasise the complexity of this particular technique of appraisal by the sheer volume of introductory, intermediate and advanced textbooks dedicated to the subject. The intricacies of CBA are not examined here, except in so far as they affect the discussion of the efficacies of domiciliary versus residential care.[4] Instead, I shall simply outline the stages of a practical CBA in this section, referring to relevant theoretical or practical problems or insights where necessary.

CBA takes account of social costs and social benefits in attempting to answer such questions as: Is project A worthwhile? How much of A is worthwhile? Do we do project A or Project B or some combination of the two? It is assumed that the consensus social objectives (as interpreted, subject to verification and alteration, by the researcher), or the decision-maker's or government's objectives, include the maximisation of social welfare subject to the various productive, budgetary, legal, administrative, distributional and "uncertainty" constraints. Under the assumption that maximisation of social welfare is adequately represented by maximisation of net social benefits (= social benefits less social costs), the CBA technique is ideally suited to answering the kinds of policy question listed above.

11.2.1 The Stages of a Cost-Benefit Analysis   I shall distinguish five stages for a CBA: separate or define the projects; list the cost and benefit concepts; quantify and value the costs and benefits; submit a decision; and qualify or revise that decision in the light of risk, uncertainty, sensitivity and so on. These stages are briefly described here for a general CBA, although with one eye on personal social service uses, and are then tackled in the context of domiciliary and residential care of the elderly in section 11.3.

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[4] In particular, I shall not discuss the suitability of the potential Pareto improvement criterion as the theoretical basis for CBA, nor the interpretation of the concept of a "social objective" upon which it is based, except for some comments on distributional problems. Suffice it to say at this point that I favour the interpretation of a social objective as a "statement of consensus ethical judgements" - the so-called decision-making or Paretian approach - recently discussed by Sugden & Williams (1978, pp.91-5) and Drummond (1980). This allows objectives other than economic efficiency to be included.

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(a) Separate the projects. There are at least three points to note in this respect. Firstly, we must define the nature of the policy decision. Are we concerned with whether to do project A or not do project A, or are we choosing between A and B, and so on? We must ensure that the question that CBA is asked to address is the relevant policy question. In some instances it may be quite clear, because of the constraints under which policy is operated, that A must be done. In such instances, CBA should be concerned with 'how much of A?' The second point is to be clear that the projects being compared are alternatives, that if A is not used then B will be accomplishing roughly the same objective in some other way. It has frequently been argued that policy discussions in the social services "assume a false dichotomy between residential and community-based services" (Whittaker, 1978, p.31) so that in comparing services for the elderly we shall have to be clear about the extent of the substitutability between them. Third, we have to define the extent of the policy decision. Most projects, however small or localised, will have ramifications well beyond the immediate beneficiaries and sufferers. Many of these ramifications are too small to be of concern, and others can be assumed to have been taken on board through the workings of reasonably perfect product or factor markets, but this should always be checked and/or explicated at the outset.

(b) List the costs and benefits. At the second stage, the costs and benefits of the project(s) are listed. The resources used by the project (or service, or whatever) and the effects of that project must be conceptualised. For many projects the costs and benefits will appear to be relatively straightforward to list, although there are a number of potential pitfalls (see below).[5] For health and social services projects, in contrast, the researcher would need to undertake a review of the kind presented in chapters 1 to 5 above. At this stage the researcher would also have to decide whether to measure outputs at the final or the intermediate stage. There are four major pitfalls to be avoided. First,

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[5] There are many ways of designating implications and effects as either costs or benefits. Some costs in one study may, for example, be called negative benefits in another. The mode of designation is of no consequence with most decision rules (see (d) below).

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transfer payments should be excluded. A transfer payment is a passing of money from one person of group to another which is not payment for goods or services received. Prime examples are taxation (a transfer payment for society as a whole) and unemployment benefits (whether paid out of an insurance scheme or as "pure relief", and no matter how financed). Most studies of care services for the elderly can immediately be criticised for their erroneous inclusion of social security and related payments. Second, the researcher should be wary of <u>double counting</u>. This is often simply a particular example of transfer payments but it is worth reiterating.[6] Third, and again related to the above pitfalls, we should only include secondary benefits and costs (i.e. accruing to other than the immediate beneficiaries or sufferers) if there are no accurate (market) valuations placed on the immediate or primary benefits and costs. If such market valuations <u>are</u> available then they will automatically have taken account of all secondary effects. Finally, we must decide on the project-life: how long will the new road/residential home/hospital remain in use, and over what period are we to measure/ predict the individual benefits and costs? This is clearly a very difficult thing to decide for account must be taken of the physical length of life of the project, the technological changes that may render it obsolete before the end of this period, the shifts in demand or need which will also determine obsolescence, and the emergence of competing products, services or projects. Because these factors are so difficult to predict the researcher should wherever possible undertake a sensitivity analysis (see (e) below).

(c) <u>Quantify and value the costs and benefits</u>. These two procedures - quantifying and then valuing the costs and benefits - are discussed together because it is often very difficult to distinguish them, not in principle, but in practical circumstances. In essence, many of the problems of measurement, particularly of the outputs and of the service-provider costs, have already been discussed (see chapters 3 and 7 respectively) and

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[6] In general, technological externalities should be included, and pecuniary externalities excluded.

repetition is unnecessary here. However, the valuation of the outputs
(or benefits) has not been considered, and the practical difficulties
of obtaining opportunity cost values have yet to be examined. Social
opportunity costs are needed to ensure a socially representative valuation
of resources and to allow a socially efficient allocation to be achieved.
The opportunity cost of using a resource in a particular project is the
value of that resource in its next best use, and in certain circumstances
this value is closely related to the market price. In most cases,
however, market prices are either too distorted to be valid indicators of
"foregone opportunities" or simply do not exist.

In a perfectly competitive economy we would have market price exactly
equal to marginal social cost (and so "marginal social valuation")
of the input or the product.* However, perfectly competitive markets
are the exception, not the rule, and so market prices have to be adjusted
before social costs or values are approximated. These adjusted or shadow
prices are then used in the CBA. A number of market distortions may be
distinguished. First, if resources are supplied by a monopolist, or some
group with market power, then price and marginal social cost will not be
generally identical. The adjustments to the observed prices are made in
accordance with the nature of the production - if the resources would
not otherwise have been produced or used then their shadow price is set
equal to the marginal cost of production; if, on the other hand, the
resources are diverted from some other use then the shadow price is set
equal to the value in the next best use, equal to the demand price in
the market. If some of the resources have been diverted from other uses,
then a suitable weighted sum of the marginal cost and the demand price
is employed. Second, indirect taxation whose only aim is the raising
of revenue for the Exchequer or the local authority will similarly distort
prices. If the employed resources would not otherwise have been produced
or used then the shadow price is the supply price (the marginal cost of
production), whilst diverted resources are set at the demand price (i.e.
including the taxes). Combinations of the two are again used accordingly.
If, on the other hand, the taxation is imposed to control for externalities
(such as pollution), or to discourage "merit-bads" (like smoking), or
to redistribute income then adjustments of market prices might not be
needed. A third source of market distortion is unemployment. Staff

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* In fact, to ensure that prices equal marginal social values,
  we not only require perfect competition but also that all
  goods (or sources of utility) be marketed. This requirement
  includes futures and uncertain prospects.

employed on the project or service being assessed by the CBA who would
otherwise have been unemployed may have a zero shadow price. In fact,
it might be more accurate to set the price equal to the value of foregone
leisure and the costs of travelling to and from work, which implies a
shadow price somewhere above zero, or, alternatively, to set the shadow
price below zero if the individual was prepared to work for less than
his unemployment benefits (etc.). A further complication is that one
must consider the government's macroeconomic policies, for if the
present unemployment level is that which is necessary for "policy
optimisation" then employing an otherwise unemployed person may create
unemployment elsewhere, so that the shadow price is equal to the wage
which is paid.[7] If unemployment is structural this "complication" does
not arise. The fourth difficulty arises with foreign exchange: if
resources are imported from abroad the official exchange rate may not
accurately reflect their true value, and some demand price (for foreign
exchange) would have to be used. A fifth difficulty arises with jointly
produced outputs or jointly used resource inputs, so that common costs
are difficult to apportion. An estimated cost function will help generate
individual marginal costs in some circumstances, but other methods will
be necessary in other cases (see Drummond, 1980).[8]

As well as these market distortions there are difficulties of placing
social valuations on the non-marketed resources, as well as the outputs.
Obviously we do not even have a market price upon which to base our
calculations. The principles of placing social valuations on non-marketed
and intangible resources (costs) are the same as those for non-marketed
and intangible outputs (benefits), and do not therefore need to be
distinguished. With personal social services many of the inputs and
outputs are not traded. In general terms there are three ways of valuing
untraded items: (a) seek surrogate prices by finding what the consumer/
buyer would be willing to pay if there was a market for the item (for

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[7] Here, as with all the stages, it is impossible to do full justice to the
economic arguments for adopting different procedures and different values.
More thorough accounts are provided by, for example, Layard (1972),
Mishan (1971), Prest & Turvey (1965) and Sugden & Williams (1978).

[8] These many and various market distortions clearly indicate that the use
of client charges as cost surrogates is replete with difficulties. Despite
these problems, charges and fees are still used in this manner (e.g.,
Moos & Lemke, 1980).

example, the compensation required to suffer a nuisance, and so on);
(b) observe individuals in similar circumstances and derive implicit
valuations from their actions; and (c) obtain implicit valuations from
policy decisions in related areas. This valuation of non-marketed
resources and outputs is probably the single most difficult and most
controversial element of CBA. Related to it are questions of whose
valuations to accept and difficulties of deciding who comprises the society
whose valuations we are trying to approximate. A degree of progress
has been achieved in the health economics field with the valuation of health
statuses and improvements therein. Culyer (1978) recently reviewed many
of these valuation procedures, and Rosser & Kind (1978) estimated a scale
of calculations of states of illness from interviews with various patients,
nurses, doctors, and "healthy volunteers", based on the Churchmann &
Ackoff (1954) ratio scale method. Similar techniques have been used to
measure perceived crime seriousness (Gibbs, 1974). Other interesting and
relevant techniques from the health services area have been proposed by
Culyer, Lavers & Williams (1971), Rosser & Watts (1972), Torrance (1976)
and others. Mushkin & Dunlop (1979) provide a useful review of health
status measures and valuations. Of course, a number of difficulties arise
with the ordinal scales used by some of these authors, and cardinal scales
are somewhat harder to construct. In general, rather more satisfactory
shadow prices have been obtained for the various non-marketed resources
(the costs) than for the non-marketed, and especially the intangible,
outputs or benefits.[9] It is for this reason that many researchers have
tended to favour cost-effectiveness analysis (CEA) in preference to CBA.

(d) Submit a decision. Having faithfully followed the recommendations
of the first three stages we would have obtained a series of costs and
benefits for each project. Consider a project X; then these social
costs may be denoted C_o, C_1, C_2, ..., C_n and social benefits B_o, B_1,
B_2, ..., B_n, where 0, 1, 2, ..., n denote the time periods (years) with
0 being the current year. Typically, C_o will be large and subsequent costs

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[9] Some of the "intangibles" that have received a great deal of attention
from economists and for which monetary values have been seriously
suggested include recreational facilities, noise, other pollutants, time
and life (cf. Jones-Lee, 1976; Mooney, 1977; Pearce, 1978).

relatively small, whilst the benefits will probably not vary a great deal except in so far as there may not be any for a couple of years if the capital requirements of the project are large. Zero values for some of the C's or B's obviously cause no problems for the analysis. To render future benefits (and costs) comparable with present benefits (and costs) we must discount them back to the present time. If society values £1 next year the same as $£(1+r)^{-1}$ today then r is called the <u>social rate of discount</u>, with $r \geq 0$. Assuming, quite reasonably, that costs and benefits are discounted at the same rate and, less reasonably, that the social rate of discount is the same for all years,[10] we can then define the present value of benefits (PVB) and costs (PVC) as:

$$PVB = \sum_{t=0}^{n} B_t (1+r)^{-t} \quad \text{and} \quad PVC = \sum_{t=0}^{n} C_t (1+r)^{-t};$$

and the net present value of benefits (NPV) as: NPV = PVB-PVC. The decision rule is then simple: if NPV is greater than zero then project A should be undertaken, if it is less than zero A should not be done, and if it equals zero then society is indifferent to A. This is the so-called <u>next present value criterion</u> for CBA, and it can easily be extended to more than one (competitive) project by choosing the project with the greatest NPV. When we are considering how <u>much</u> of A to do, and how <u>much</u> of B, the decision rule is a little more complicated and requires the researcher to take more notice of relative marginal social costs and marginal social benefits.[11] Mooney (1978) provides a very good discussion of one method of deciding how much residential, domiciliary and hospital care to provide in one small area, and his study is discussed in more detail below.

The NPV decision is not the only criterion that can be and has been adopted in CBA studies. Occasionally, <u>benefit-cost ratios</u> are computed (equal to PVB/PVC) and the project with the largest ratio recommended for selection. Unfortunately, unless the distinction between benefits and

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[10] There is no real problem in allowing different discount rates for different years, except that these must be estimated. The present value expressions in the text below become more complicated but are tractable.

[11] These marginal social costs and benefits have been implicit in much of the foregoing discussion. For example, if we want to decide how much of A to do (say, how much residential care) we choose the level which maximises the NPV, which is exactly that level at which marginal social costs and benefits are equal.

costs is entirely free of ambiguity, which is unlikely to be the case in
many social policy contexts, these ratios may not be reliable indicators
of the social worth of the projects. Two other criteria have been
suggested. The <u>internal rate of return</u> rule first finds that internal rate
of return, i, which makes the present net value of a project exactly equal
to zero, i.e.

$$\sum_{t=0}^{n}(B_t - C_t)(1+i)^{-t} = 0,$$

and then recommends the project be undertaken if i > r, and not be
undertaken if i < r. The internal rate of return criterion is likely to
be more suggestive to those familiar with conventional financial appraisal
than is the NPV criterion, and more readily allows the inclusion of risk
elements. However, it is not intrinsically the correct rule (it merely
gives the right answer on most occasions) and it is vulnerable to the
problem of multiple solutions (i.e., the above equation can be solved
for more than one value of i). In some circumstances the internal rate
of return criterion is preferable to NPV, but this is not generally the
case. The other criterion is the <u>terminal value rule</u>. Mishan (1972)
suggested a normalisation procedure to overcome the problems associated
with the internal rate of return rule and to ensure that it yields
identical results to the NPV rule. Basically, costs and benefits are
no longer discounted back to the present but are compounded to a terminal
value, using a rate equal to the opportunity cost rate (for investments) or
the social rate of time preference (for consumption), and all projects
are scaled up so as to be normalised for length of life. The terminal
values of the costs of different projects are also equalised. The
decision rule is then to choose the project with the greatest "normalised"
terminal value of benefits.[12]

Whichever decision is used, an actual rate of discount or rate of
compound is needed. Difficulties arise when that rate has to be estimated.
The basic question to ask concerns the alternative uses of the money
or resources employed in the proposed project(s), and the social discount
rate is determined accordingly. There is insufficient space to discuss the
determination of this rate in detail, but essentially the rate depends
on the apportionment of the funds or resources between foregone consumption

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[12] The conventional NPV method, together with an allowance for reinvestment,
gives identical results to the terminal value method.

and foregone investment and on the proportion of the foregone private investment income that would have been reinvested. These proportions determine whether the social discount rate is set equal to the social rate of time preference, the internal rate of return on private investment, or some combination of the two. This determines the rate in principle; in practice we still have to attach a numerical value to the rate. The social rate of time preference is particularly difficult to establish because there are differences in the terms at which people can borrow (reflecting differences in collateral, duration and purpose) and hence different market interest rates reflecting different degrees of risk and implying different rates of time preference. That is, there is no single social rate. Anyway, market interest rates reflect individual time preference rates only when individuals have perfect information, and are influenced by the government's macroeconomic policies. The usual proxy for the social rate of time preference that is adopted is the rate of interest on long term government bonds, but this has its problems.[13] Generally, this rate is likely to exceed the social rate of time preference and this will mean that projects whose principal net benefits are further away will appear to be less favourable than is really the case.

(e) Take account of risk, uncertainty and error. Risk in the CBA context means that the value of a variable is unknown but its probability distribution is known. Uncertainty means that neither the variable nor its probability distribution is known, and this is more common than risk. Errors simply mean that we may set the social discount rate too high, compute a mistaken shadow price, allow too long an expected life span, and so on. The researcher can allow for these by conducting a number of sensitivity analyses, computing the NPV (for example) on different assumptions regarding the costs, benefits, rate of discount, and so on.

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[13] Income taxes and capital taxes reduce the incentive to save and invest, and hence private returns will be lower than social returns. Even in the absence of taxation future benefits are likely to be discounted too heavily through "myopia". Thirdly, the market does not adequately take account of the interests of future generations. Thus the market rate will exceed the social rate of time preference. As Prest & Turvey (1965) wrote: "... whatever one does, one is trying to unscramble an omelette, and no one has yet invented a uniquely superior way of doing this". See also Scott (1977).

Sugden & Williams (1978, chapter 12) discuss these issues in more detail.

<u>11.2.2 Cost-Effectiveness Analysis (CEA)</u>   The stages of a CEA exactly mirror those of a CBA except that no attempt is made to place money values on the various benefits of the projects. It is thus assumed that costs may be distinguished from benefits, the former being measured in monetary terms and the latter not. Benefits are not reducible to monetary measures "as a matter of practice, or should not, as a matter of principle" (Sugden & Williams, 1978, p.190). Thus the CEA technique aims to show how a given level of benefit can be achieved at minimum cost (or maximum benefit at given cost). Problems clearly arise with more than one output or benefit, especially when these benefits are not systematically or consistently related to each other. "Rates of exchange" between benefits have been suggested and provide some help in this respect, but on the whole I would agree with Sugden & Williams that CEA is most useful when "choosing between mutually exclusive ways of achieving a particular, very clearly defined benefit" (ibid, p.191). CEA also suffers a number of other potential difficulties and drawbacks, most of which are shared by CBA. These difficulties are now briefly described.

<u>11.2.3 Distributional and Other Problems</u>   Thus far, we have assumed that benefits accruing to one individual are just as valuable as equal benefits accruing to another individual, and also that the incidence of costs is irrelevant. It has not mattered so far whether costs are borne by a public agency, an individual's family, an individual, a voluntary organisation, or anyone else.   CBA and CEA are techniques designed to ensure economic efficiency in the allocation of resources, and they make the simple distributional assumption that an extra £1 of income has the same value from a social welfare point of view no matter to whom it accrues. In other words, the distribution of income or wealth (or whatever), either at the start or the end of the project, is not a concern of the cost-benefit analyst. This neglect of distributional matters stems from the reliance of CBA on the potential Pareto improvement criterion. It is assumed that so long as the gainers from a project <u>can</u>, in principle, compensate the losers and still be better off than before then the project will raise social welfare; there is no obligation for the gainers to compensate the losers in practice. CBA and CEA as described above adopt

unitary weights for gains and losses; the way to incorporate distributional effects is therefore to adopt different weighting schemes which, perhaps, favour the less well off members of society. Weighting schemes are based on different ethical principles, the most common of which (among economists, that is) is utilitarianism. Weights are thus sought which approximate individuals' marginal utilities of income. Alternatively, a set of distributional weights could be based on Rawlsian or other ethical postulates. In practical circumstances, weights have been based on relative incomes, marginal rates of gross taxation, marginal rates of net taxation (i.e., benefit-burden ratios), and the weights implicit in other government decisions.

It has, however, been argued that the cost-benefit analyst should not be concerned with distributional issues.[14] It is argued instead that these are the concern of the professional politician whose job is to interpret the preferences of members of society. A slightly different view is taken by Culyer (1977). His argument is not that the economist should be unconcerned with distributional issues but that he should not present an analysis of them that was merely a vehicle for his own prejudices and that subsumed equity under efficiency. The rôle of the economist is thus to point out the distributional implications of proposed policy changes as an adjunct to his reported CBA conclusions (Drummond, 1980, pp. 22-23). In some cases, of course, the distributional implications of a project may be too small to be of consequence (although this should be checked and not assumed), or the researcher may prefer to rely on the "distribution or income maintenance branch" of government to examine and perhaps correct for any larger distributional implications. Unfortunately, such fiscal policies as are used as instruments of distributional change are rather less local- ised than the effects of most projects subjected to cost-benefit analysis (either geographically or individually), and redistribution is far from

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[14] The Paretian interpretation of CBA virtually enforces this neglect of distributional matters; the decision-making interpretation, which is favoured here, cannot, virtually by definition, ignore them. Judgements about the relative desirability of different distributions of income must be made. The Paretian and decision-making interpretations of CBA were mentioned in footnote 4 above. See Sugden & Williams (1978, chapter 14) for the respective distributional implications of these two interpretations. See also Drummond (1980).

costless in other respects.[15]

The general neglect of the distributional implications of proposed
projects has certainly not been the only aspect of CBA to be criticised.
Many of the practical difficulties of CBA have already been discussed in
this chapter (for example, the separation of costs and benefits, the choice
of an appropriate social rate of discount, the choice of a reliable and
tractable decision rule), and others have been discussed elsewhere in
this thesis. Among the latter are the difficulties of conceptualising
and measuring output and the social opportunity costs of resource inputs.
These difficulties are, of course, shared by all or most other efficiency
analyses and, it should be emphasised, are only avoided by other techniques
of policy development or determination which are inadequately or simply
incorrect by the criteria of the social welfare paradigm. Another problem,
which has not yet been mentioned, is that CBA and CEA are microeconomic
and not macroeconomic techniques and assume partial equilibrium consider-
ations to be sufficient. Many projects, however, have wide implications
which may alter the prices or supplies of resource inputs or the patterns
of demand or need over time. For example, Dunlop (1975) felt that CBA
was "particularly vulnerable when applied to health problems with a
potential for a multiplicity of interactions with other societal institutions,
not the least of which being its demographic structure." Thus, "extra
marginal" changes should be incorporated in the analysis wherever possible,
particularly changes in relative prices. CBA and CEA are techniques for
gauging the economic efficiency of alternative projects, and we have
discussed above the possibilities of including distributional objectives
or factors in them. Other objectives, such as equal availability or
access to services, may be important but have generally been ignored.
These can be included in the analyses without discarding the efficiency
objective, but they may restrict the evaluation (Drummond, 1978).[16]

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[15] Basically, if redistribution is costly the existing distribution of
income (or whatever) may not be consistent with the maximisation of social
welfare. See Sugden & Williams (1978, pp.199-201, 208-210).

[16] The final chapter of the book by Sugden & Williams (1978) provides a
good summary of the major difficulties faced by cost-benefit analysis
and its advocates, including a useful evaluation of the theoretical
underpinnings of the technique.

11.3 Residential or Domiciliary Care? The Cost-Benefit Approach

As stated at the outset, my aim here is not to carry out an actual CBA in order to aid the choice between residential and domiciliary care for the elderly, but to describe how the CBA framework may guide such a choice. The CBA method of project appraisal is a natural extension, or more correctly a natural component, of the production relations approach to care of the elderly. Many of the criticisms of CBA concern the technique itself and not the production relations approach, and it is therefore important to emphasise that the discussion in this section should provide a valid framework for the comparison of these two (and other) services whether or not the CBA technique itself is accepted. The first subsection below describes the policy background to this choice between services, and the discussion then moves on to an examination of the stages of CBA in the particular context of residential versus domiciliary care. These stages provide a useful structure for identifying the various obstacles to a "fully valid choice" between the services and also for highlighting the inadequacies (whether enforced or otherwise) of previous comparative studies of these two services. In subsection 11.3.4 which corresponds to 11.2.1(d) above (Submitting a decision), some of the better known of these comparative studies are described and assessed in the light of our discussion of CBA.

11.3.1 The Policy Background   One of the most oft-quoted objectives of care of the elderly during the post-war period has been a preference for domiciliary over residential care: "... it is the general objective of both health and welfare services, working in co-operation, to maintain the elderly in the community and to accept admission to hospital or residential care as the right course only when an old person himself accepts the necessity for this and when he has reached the point where the community services are no longer sufficient" (Cmnd 1418, p.122). This quote came from the Annual Report of the Ministry of Health for 1960, but it would have been possible to have selected similar quotes from any number of other such Reports, speeches, memoranda, circulars and Building

Notes.[17] Over the years this preference for domiciliary care has developed
first from an <u>assumption</u> that it is the best policy to an accepted
<u>doctrine</u> requiring, it would seem, little or no rationalisation,[18] and,
more recently, to a rational policy based on the (generally untested)
premises of client well-being and cost.

The two main rationalisations for a policy emphasis on domiciliary
rather than residential care have been that elderly people prefer to
live in their own homes (the humanitarian view) and that domiciliary
care is cheaper (the organisational view). The Guillebaud Committee
for example felt that the development of domiciliary services "will be a
genuine economy measure, and also a humanitarian measure in enabling old
people to lead the sort of life they prefer" (Cmd 9663, paragraph 647).
That old people would themselves prefer to remain in their own homes
was cited in both Nuffield-sponsored surveys of the 1940s and stressed
again by Bevan in the National Assistance Act debate. Rowntree (1947,
paragraph 259) found many "old people maintaining a hopeless struggle
against adversity in order to cling to their last vestiges of independence"
and so avoid being admitted to the much-feared Poor Law Institution.
Sheldon's (1948) general impression from his survey of the elderly in
Wolverhampton was "one of admiration for the mental vigour and 'guts'
of the old people: one cannot avoid the suggestion that the facts of
living in an environment that they are used to, of having something to
do and of being able to feel necessary in the world are important
factors in producing this state of affairs". The researcher is hard-
pressed to find substantial as opposed to circumstantial evidence to

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[17] See, for example, Aves (1961, p.172), Central Policy Review Staff (1975,
p.15), Cmd 9333 (para.323), Cmd 9566 (p.138), Cmd 9663 (para.647),
Department of the Environment Circular 88/75, DHSS (1973, p.10; 1976b.
para.8; 1977, p.10; 1978, pp.4-5, 32), Expenditure Committee (1971-72,
paragraph 14), Ministry of Health Circulars 12/61, 2/62 & 10/65, National
Old People's Welfare Committee (1966, para.3), Townsend & Wedderburn
(1965, p.21). See also Parker (1965, pp.121-130).

[18] For example, the Annual Report of the Ministry for 1953 talked of
"universal recognition of the urgency of the task of enabling old people
to go on living in their own homes as long as possible" (Cmd 9321, p.
187), whilst by 1954 and in 1956 this had become "generally recognisable"
(Cmd 9566, p.138; Cmnd 325, p.206).

support these assumptions that the elderly prefer independent living.[19]
Some of the studies which have offered reasonably substantial evidence
are discussed in more detail in section 11.3.4. The Expenditure
Committee (1971-72) obviously had some doubts about domiciliary care:
"Maintenance of one's own home poses the question of whether the resulting
quality of life is in fact satisfactory. ... The goal, if achieved,
depends on many factors besides the services provided" (ibid, paragraph
15). Harris' (1968) survey found that 11% of old people's home residents
said they were unhappy as compared with 7% of those living at home, but
she "did not find any evidence to support the picture of old people's homes
being inhabited by masses of unhappy and discontented residents" (ibid.
p.69).

The contention that domiciliary or "community" care is very much
cheaper than residential care is examined below but it should be noted
here that many authors have expressed doubts abouts its validity.[20]
Often comparisons have been made between services which simply are not
alternatives, and on other occasions the comparability of the services
has been limited. Plank (1977), for example, felt that: "Domiciliary
care is cheap simply because it often stands for desperately poor levels
of care. The levels of care are poor because services are not provided,
i.e. money is not spent" (paragraph 2.37). The cost comparisons have nearly
always neglected the various influential factors discussed in chapter 7
above, have been inadequate on a number of other counts, and have, of
course, often neglected to take account of service effectiveness.

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[19] Consider, for example, the claim that "the dramatic way the average
age of admission to Part III (homes) has increased ... gives a clear
indication of the fact that the great majority of the retired can and
do prefer to manage in their own homes" (Hobman, 1978, p.25). Others have
argued that shortages of staff relate "to the standards and quality of
personal care provided in residential homes" (Booth, 1978, p.6) and thus
provide a case against residential care. The fact that there has simult-
aneously been increasing difficulty in obtaining or providing family and
voluntary aid for the elderly (cf. Moroney, 1976; Davies & Challis, 1980;
and chapter 2 above) seems to have been overlooked.

[20] As well as those studies cited below, see Carstairs & Morrison (1971,
paragraph 7.46), Macintyre (1977, p.56), Shenfield (1957, p.168) and
Utting (1977, p.14): "Residential care may be expensive, but for the
right people it is more effective than other methods, and more efficient
in that it achieves comparable or better results at lower cost". See
also Pollak (1976) and Lawton (1980, p.123) for similar conclusions
based on American evidence.

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A third rationalisation for the general preference for domiciliary over residential care has reemerged in recent years. It is now often argued that domiciliary care has the virtue of reducing the burden on residential care.[21] This emphasis on non-residential care stems from a realisation that the elasticity of supply of residential places in response to changes in need is much less than the elasticity of supply of domiciliary services. Residential services are felt to be of considerable value for some elderly people and, because they are scarce resources, should be used carefully in order to maximise their effectiveness. Domiciliary services are thus seen as an important filtering or rationing device for residential services. In other words, the relative cheapness or cost-effectiveness of domiciliary care derives not from its substitutability but from its complementarity with residential care. This clearly suggests that the vague question regarding residential versus domiciliary care requires more careful specification, and this is undertaken in the next subsection. It is worth noting at this point, however, that some authors (e.g., Paige & Jones, 1966, p.32) do not believe that domiciliary care is particularly important in this regard, and Maddox (1977, p.155) even argues that such "complementary" domiciliary provision will raise rather than reduce total system costs.

How successful has been this post-war emphasis on domiciliary as opposed to residential care? There is certainly no agreed answer in the literature, with different authors using the same data in different ways to reach different conclusions. Townsend (1962, p.395) argued that: "A future social historian may well select this [the pronounced shift of priority] as the most striking failure of social policy in the last decade". Contrast this with the feelings of Carstairs & Morrison (1971) that "the provision of domiciliary services for the elderly ... has certainly shown some gains in recent years" (p.82), and of the Ministry of Health Report for 1961 that "the development of services needed by older people has reflected very clearly the swing in social philosophy away from institutional to home care" (Cmnd 1856, pp.157-8). Interest in,

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[21] Both the Majority and Minority Reports of the Royal Commission of 1909 emphasised this function of domiciliary care (Cd 4499). See also the Ministry of Health Annual Report of 1960 (Cmnd 1418, p.110) and DHSS (1976b, paragraph 5.15).

and encouragement of, domiciliary care increased over the post-war period - chiropody services were sanctioned in 1959, home meals were sanctioned in 1962 (via a private member's bill) and home help services were not obligatory until the passing of the Health Services and Public Health Act of 1968. Progress was certainly made in favour of domiciliary services, but this was often very slow.[22] "Although for many years it has been part of national policy to enable as many old people as possible to stay in their own homes, the development of the domiciliary services which are necessary if this is to be achieved has been slow" (Cmnd 3703, paragraph 309). Ten years after Seebohm, the DHSS (1978a) reported that the rate of movement towards domiciliary care had been slow because of resource constraints, existing commitments and pressures, and the need to develop residential services in certain priority areas. Booth (1977) believes there have been a number of obstacles to the change towards an emphasis on non-residential care: the conservatism of professional interest groups, of the local authority budgetary process, of the legal framework in local government, of the local authority political process, of public opinion, and of the decision-making process. A further obstacle to change, which Booth also recognises, is the fact that innovatory care schemes or services are almost always more rigorously examined and evaluated than existing services and schemes. Whilst the domiciliary services which policy-makers and commentators have in mind when recommending a shift away from residential care are not usually innovatory, they too should be carefully evaluated.

11.3.2 <u>Specifying the Relevant Policy Questions</u>   As described above, the first stage in a cost benefit analysis is to separate the projects to be evaluated. In the present context that means specifying the exact nature of the policy choices facing care providers. As mentioned earlier, for many old people there is really no choice as to the mode

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[22] Not only was progress slow, it was also sometimes perverse. For example during the early 1960s, when the policy preference for domiciliary care was as strong as ever, the various local plans assumed financial priorities which "did not appear to bear out the policy of improving community services" (Macintyre, 1977, p.55), with current expenditure on residential accommodation expected to rise by 39% during the period 1961/2 - 1964/5 as compared with an increase of 32% in the three main domiciliary services (home help, home nursing and health visiting)(Townsend & Wedderburn, 1965, p.22). Similarly, "Between 1966 and 1968, when the 'community care' concept was at its peak of popularity, the number of full-time home helps, home nurses and health visitors declined in England and Wales" (Macintyre, 1977, footnote 17).

of care required: thus there are no alternative forms of care to be compared for these clients.[23] There will, in the words of the PSSC (1979, paragraph 22) "always be an inescapable need for residential care", a fact that has been widely recognised, and for some time (e.g., see DHSS, 1976b, p.38; Doherty & Hicks, 1977; Expenditure Committee, 1971-72; Plank, 1977; Shenfield, 1957, pp.169-171; Sumner & Smith, 1969, p.354). Mooney's study in Aberdeen in 1976 covered elderly people in hospitals, residential homes, and in receipt of domiciliary care services. "Margins" of care were examined and it was found that matrons placed 4.9% of the 366 home residents on the domiciliary care margin when the existing balance of care services remained unchanged, and 11.5% when it was assumed that the number of residential places was to be reduced (by some unspecified amount). Booth (1980) attempted to obtain a similar indication of the proportion of residents of old people's homes who could manage adequately in their own homes (with domiciliary support if necessary). His study, conducted in Sheffield in the same year as Mooney's, did not use the subjective opinions of matrons as to the suitability of residents for domiciliary (or hospital) care, but used a dependency questionnaire (completed by matrons) and his own objective assessment as to which of the less dependent residents could manage outside the home. Neither of these two research approaches is particularly satisfactory, as both authors recognise, and the two give very different pictures of the extent of potential substitutability of domiciliary care for residential care for

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[23] Quite clearly I am here working within the constraints of the existing range of care services. In principle there will always be alternatives to residential (or domiciliary) care for all elderly people, but in practice most of these alternatives are as yet untried or unexploited. One alternative to residential care that has been tried in some areas of England and Wales, and which is currently being evaluated within a cost effectiveness framework (against conventional domiciliary services) is described by Challis & Davies (1980) and Davies & Challis (1980). Golant & McCaslin (1979) discuss the full continuum of care implicit in these innovations, and Doherty, Segal & Hicks (1978) describe some innovations that have been tried and evaluated in the USA. In the terminology of the economist, I am assuming a short- or medium-run model in which services are constrained by existing capital resources, or sometimes even a long-run model in which new capital resources (such as residential homes) can be "created" and employed, but not a "very long-run" model in which technological change (i.e., innovation) is allowed to play a part.

some elderly residents.[24] However, Mooney's study is the more useful in
that it also obtained information on the proportion of elderly people
currently receiving services from health visitors (comprising 90% of
the waiting list for residential care in Aberdeen). Health visitors
recommended 14.5% of their clients for residential care at that particular
time, and another 6.2% for hospital. In other words, whilst a number of
residents of homes could alternatively have received care "in the
community", at the same time a number of the elderly living in their own
homes could (or should) have been accommodated within
residential homes. Plank's (1977) study of eight London Boroughs used
a similar design and found similar overlapping client groups: 8% of old
people's home residents could, it was felt, have lived elsewhere (2%
in sheltered housing,6% in private dwellings), whilst social workers
felt that 30% of the elderly on waiting lists for residential care could
not reasonably remain outside a home (and another 32% could reasonably
live in sheltered housing). Again, there are all sorts of difficulties
with the approach adopted by Plank, as he himself explains in his report,
but the important point to notice is that for many old people there is no
viable alternative to residential care within the constraints of the
existing system of care services. The studies conducted by Booth, Mooney
and Plank are all considered again later in the chapter.

Even when there are alternative care services for some elderly people
it is not always clear that they are actually comparable. In other words,
for the 37.3% of old people's home residents in Sheffield considered by
Booth to be "largely independent", the alternative domiciliary care that
could be provided must be comparable to the residential care provided.
Of course, if the benefits of both residential and domiciliary care are
fully assessed in the CBA project then any major differences between
services will, if important by the criteria of the social welfare
paradigm, show up in the final comparison of benefits or in the final CBA
decision or recommendation. Problems arise when benefits are not, or
can not, be fully assessed in the ideal manner described in this chapter.

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[24] Booth (1980) reckoned that 37.3% of residents in Sheffield (local authority)
    homes were "largely independent in their personal functioning within
    the home" (p.17). Many factors other than research design would account
    for observed or postulated differences in the "margins of need" between
    local authorities (cf. Bebbington & Davies, 1980a).

For example, many of the so-called cost-benefit or cost-effectiveness studies of alternative care services are really only cost-cost comparisons, occasionally with a dependency comparison or standardisation thrown in for good measure.[25] If, then, domiciliary care is held to mean a few hours of home help per week, five midday meals from the WRVS and a great deal of discomfort and misery for the rest of the time, is it really anything less than grossly invidious to compare the costs of domiciliary and residential care for clients with some roughly equivalent degree of dependency or incapacity?

This leads on to the more general point of the correct or most useful policy question for the CBA or CEA to address. The deliberately vague question posed earlier: "Do we prefer domiciliary care to residential care?" must now be specified more carefully. A commonly posed question is of the form: "Is domiciliary care more cost-effective than residential care?" This traditional question is still too vague for analytical purposes for we must specify the group of clients concerned: Do we mean to include all the elderly clients of local authority social services departments, voluntary organisations, and so on, or just new clients, or just marginal clients? An alternative form of question which is sometimes addressed thus asks for whom domiciliary care is more cost-effective than residential care or, equivalently, for individual A, is domiciliary care more or less cost-effective (or whatever) than residential care?[26] This marginal or incremental approach is to be preferred on a number of grounds to the vague, global approach implicit in the first question posed above. In particular, it accords with the reality of caring systems in that policy changes are themselves constrained as to be only incremental or marginal

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[25] Many of the studies reviewed below are of this kind although only a few (e.g. Wager, 1972) purport actually to be CBA or CEA studies.

[26] "Residential care may be expensive,but for the right people it is more effective than other methods, and more efficient in that it achieves comparable or better results at lower cost" (Utting, 1977, p.14). Challis & Davies (1980, p.11) ask of their innovatory scheme of care: "to which clients in what circumstances is this scheme most beneficial compared with existing provision?"

(Davies & Challis, 1980), it conforms with the assumptions upon which the CBA approach is based, and it leads on naturally and consistently to questions regarding the development of care services and the "optimal balance of care" (Mooney, 1978). It also takes on board questions regarding the desirability or cost-effectiveness of providing domiciliary care to delay admission to residential care in a way which is impossible with other forms of question and other research designs. This incremental approach suggests, perhaps, an experimental design for the evaluation which allows a number of common problems of comparability and general-isability to be overcome (cf., Goldberg, 1970; Sager, 1979, pp.130-137). The question of design is certainly not easily answered, as the recent paper by Siegfried & Sweeney (1980) well illustrates. The question of residential or domiciliary care is thus not as straightforward as it appears at first glance or as implied by some previous researchers.[27]

11.3.3 Listing, Measuring and Valuing the Costs and Benefits of Care. The benefits of residential care for the elderly have been discussed in some detail in chapter 3 above, and a listing of the benefits of domiciliary care would be similar. Challis (1981) identified seven broad benefit or output dimensions of domiciliary care for the elderly: nurturance, compensation for disability, independence, morale, social integration, family relationships and community development. As with residential care services, the benefits are to be conceptualised in terms of improve-ments along each of the dimensions. In view of the extensive discussion of outputs earlier in this thesis no further consideration is necessary here, except to remark that the difficulties of benefit valution in monetary terms (or some other common units of measurement) have yet to be

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[27] It is worth quoting Plank at some length here: "The reaction against institutionalization is, perhaps, understandable, though in my view much of it results from bogus emotion on the part of people who should know better. Many interested and caring people seem to be unwilling to acknowledge the necessary consequence of this reaction for many dependent elderly people, viz., their condemnation to a woefully inadequate level of care in situations of high personal risk, personal distress and miserable physical environment. The frequent repetition of the words 'domiciliary care' does not mean that such a thing really exists for many highly dependent old people ... it is about time that the myth of domiciliary care was disposed of so that discussions about desirable directions of policy for old people in need could take place more rationally. There is need for many forms of care for elderly people, including residential care. The question is not residential versus domiciliary care, but how much of

overcome. I mentioned earlier that progress had been made in the related area of health service output valuation (see section 11.2.2(c)), and in studies of the elderly a number of output measures, but not values, have been found to work well (see chapter 3 above and also Challis & Davies, 1980; Davies & Challis, 1980; Seelbach & Hansen, 1979). A successful marriage of the two streams of research may provide benefits measured in some common units for research; otherwise the researcher will have to make do with a cost-effectiveness analysis.

On the cost side, it is helpful to distinguish three broad headings - living costs, labour costs and capital costs - and to discuss the resource implications of domiciliary and residential care for each in turn. Previous authors have used alternative classifications, distinguished by type, incidence and immediacy of impact of the resources (e.g. , see Doherty & Hicks, 1975; Pollak, 1976). It is not claimed that the present schema is superior, but it is comprehensive and it is useful for the present purposes. Certainly some classificatory schema helps us avoid some of the mistakes made in previous research. Many of these mistakes, of both omission and commission, can be found in previous British research and will be discussed in the next section.[28] Similar errors are evident in related American research. For example, Maddox (1977) found one report which concluded "that day care is cost-effective because day care patients are typically served only a few days each week in contrast to the longer stays of nursing home patients. This is why the average monthly cost of day care per older person is said to be economical" (ibid, p.157). A similar erroneous comparison of the "24-hour total life maintenance costs of a nursing home with the costs of delivering one hot noon meal each day", made by a US Senate Select Committee, is reported by Kurowski (1977), and other examples are cited by Doherty & Hicks (1975, p.414) and Pollak (1976, pp.129-30).

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27 (Continued)
  each and of other new forms of care, for whom, with what purpose, with what implications for the family and in terms of social resources, how do we ensure that people get the care most appropriate to their needs, and how do we improve the quality of life associated with various forms of care " (Plank, 1977, paragraph 2.37).

28 See also footnote 2 above.

In the examination of the costs of domiciliary and residential care we should wherever possible use social opportunity cost values. In many cases the (market) prices of resources will reflect these opportunity costs, but in just as many cases market prices will be distorted or simply will not exist and surrogate or shadow prices must be attached. Some of the more common distortions and omissions were discussed in section 11.2.1 above. Living costs - the amounts expended on provisions, clothing, personal needs, and so on - are probably reasonably well approximated by market values, provided these values can themselves be obtained. For residential homes these living costs are easily obtained from the standard accounts of the home or authority. It is possible that these costs may vary with home size (economies of scale in purchase and preparation, perhaps) and with resident dependency, but the extent of this variation is likely to be   small. For domiciliary care many researchers have found it useful to employ data collected in the Family Expenditure Surveys as the basis for the estimation of living costs. These FES figures are separately tabulated for size and type of household and allow some account to be taken of economies of scale in household size and variations in expenditure with household composition and income (cf. the papers in Schultz, 1974; see also Lazear & Michael, 1980; Papps, 1980; Pollak, 1976, p.135).[29] These variations are not likely to be large. The costs of resources provided by the social services department and other care agencies, such as "mobile meals", aids and adaptations, and so on, can easily be computed from local authority accounts, perhaps refined by information on the characteristics of clients. Of course, with a prospective, experimental design as the basis for the CBA or CEA these various living costs can be calculated exactly by direct observation of each client over a period of time. It can now be seen why living costs are usefully distinguished from the other costs of care: they refer to resources which almost always have a "market price", and these prices can reasonably be assumed to closely approximate the respective social

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[29] The refinements to and analyses of FES data proposed and undertaken by Muellbauer (1977, 1979, 1980) and McClements (1977, 1979) would, if used in the context of domiciliary care of the elderly, considerably improve these living cost estimates.

opportunity cost values.

The second cost category, labour costs, covers: staff costs in the residential home; home help, health visitor and social worker (etc.) costs in the case of domiciliary care; various peripatetic staff costs in both care settings; the costs of family and neighbour care, and the costs of volunteers, again possibly in both settings. In the case of residential care these costs should be readily distinguished in the accounts of the home, supplemented by properly costed information on the visits to the home by therapists, GPs and other peripatetic care staff. There may be variations in staff costs with home size, design and siting, and with resident dependency (as is suggested by the analyses of chapters 7 and 9), and these should be taken into account in the analysis, provided that double counting does not result. The costs of any voluntary visitors to the home are discussed below. In the case of domiciliary services, the costs of the home help, the health visitor and the social worker may be calculated from the average rates of pay of these various employees and, as with the staff of residential homes, it may not be unreasonable to assume these average rates of pay (plus the other costs of employment, but excluding any transfer payments) to be the social opportunity costs of these labour inputs.The employment of previously un-employed persons will complicate the calculation a little (as described in section 11.2.1) although this is unlikely to be very important in the present context. The two labour inputs which are hardest to cost are the family and neighbourhood resources and the voluntary helpers or carers. The shadow price of the informal help from family and friends can be reckoned in terms of the employment and leisure foregone in caring for an elderly parent or relative, and perhaps the foregone marriage opportunities. In some cases, the caring family or friends may not have worked or valued their foregone leisure time very highly but this should not be assumed a priori. Ideally one would also include the costs of the stress and strain of the caring responsibility. These are burdens which, when removed by the entry of the elderly person into a home, constitute valid outputs of residential care (see chapter 3). Of course, double-counting of these "burdens" (as costs of domiciliary care and as benefits of residential care when lifted) must be avoided. The opportunity

costs of employing volunteers, in either residential or domiciliary
care, will lie somewhere between zero (for a volunteer who foregoes no
leisure of any value and who would not have been employed elsewhere)
and the wage that could have been obtained in normal, paid employment.
As Pollak (1976, p.132) explains: "The volunteer, by supplying his
services for no remuneration is implicitly stating that the costs of
voluntary participation (foregone leisure or alternative paid employment)
may be equalled or exceeded by the personal benefits (enjoyment of the
activity and/or satisfaction from benefits received by clients). The
net cost of using the volunteer, therefore, may be zero (or even negative!)
since what the individual foregoes is compensated for by the benefits
received."[30]

Finally, the comparative study of residential and domiciliary care
must look at the capital costs. Living and labour costs are both
operating or current expenditure concepts, the latter referring to the
human resources and the former to all other resources used in the care
of the elderly. This third cost category now covers all durable resource
inputs employed in care, and principally concerns the costs of the buildings
used by residential and domiciliary services. As ever, it is the
opportunity costs of the capital resources that must be computed. For
residential care these opportunity costs are therefore the benefits
(revenue?) foregone by not using the building in its best alternative
use, which may be as an hotel, as a day centre, or as a residential home
for children. This opportunity cost value need bear no relation to the
original construction cost of the home, but it will probably not be
greatly different from the current replacement cost. This is because the
most likely alternative use for an old people's homes is as a residential
home for some other dependent client group. The calculation of these costs
has been undertaken in a particularly useful way by Wager (1972, pp.40-44).
If a new residential home is planned, these construction costs may be
relevant, but it may also be necessary to consider the opportunity cost

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[30] The issue is complicated by the fact that some volunteers may be willing
to work in more than one service, so that use in care of the elderly
means that benefits in the care of (say) the mentally handicapped
have to be foregone. Research on the motivations of volunteers by
Qureshi & Davies (1981) provides some indication of the likely
importance of this, particularly if volunteers are in short supply.

of the funds in some alternative investment. The relevance of these alternative investments to the analysis will depend upon the choices open to the policy-maker. For domiciliary services, the capital costs are much less easy to calculate. It is often argued that old people "under occupy" private dwellings, imposing a social cost whenever there are homeless families or overcrowded dwellings (see, for example, Butler et al, 1979, pp.26-27, and the references therein; Davies, 1968, p.30; Hanson, 1977), and this led Wager (1972, pp.53-54) to calculate different opportunity costs for different groups of elderly people, according to size of dwelling. Certainly there are social costs attached to the occupation by an elderly person of a dwelling of any size which must be set along side the capital costs of a residential home place. These social costs may be calculated as the market value of the dwelling as indicated, perhaps, by local house prices. In cases where an elderly person occupies a room in someone else's home, the opportunity costs may be calculated as the amount foregone by not renting the room out to a lodger or as the additional cost of occupying a home larger than would otherwise be necessary. These costs may well be zero in many cases. Again, Wager (1972, pp.54-5) describes the methodology well.

11.3.4 Submitting a Decision: An Assessment of Previous Studies   Clearly it is impossible to reach an independent decision here on the cost-effectiveness (or net social benefit) of residential care as compared with domiciliary care. The available data are drawn from such disparate sources by such diverse means that any attempt to analyse them in the way described in section 11.2 would be extremely difficult and open to much justified criticism. Instead, I shall examine a number of the better known and more important previous studies of the relative costs and/or relative benefits of residential and domiciliary care.

Many of the flaws, failings and fallacies of earlier studies of the relative merits of domiciliary and residential care for the elderly, and of previous statements or arguments of policy, have already been set out in this chapter. Many of the advantages and innovations of these studies have also been mentioned. The most common of the deficiencies may now be gathered together for they would usefully inform a full evaluation of these two services. The most serious of the deficiencies is what I shall call the "Roman Emperor's" argument. Stigler (1975), in

a different context, likened some policy-makers and commentators to the Roman Emporer who, called upon to judge a music contest involving two competitors, awarded the prize to the second musician having heard only the first one play. It is not uncommon, in a personal social services context, to find serious arguments for domiciliary care based solely on an examination of residential care (e.g., Booth, 1980). A related deficiency, orthogonal to the first and no less common, is the "dark side of the moon" argument: only one side of the cost-outcome relationship is examined. Some researchers and commentators will see only the cost side of the comparison, others will regard only the outcome, benefit or effectiveness side. This deficiency is common to a number of American studies, as Doherty et al (1978) and Pollak (1976) have pointed out, and is not infrequently observed in previous British work, as was seen earlier in this chapter. Of course, many studies do not attempt to cover both the cost side and the benefit side, and recognise the fact; others draw policy conclusions regardless.

A third group of inadequacies or deficiencies concern the failure to compare "like with like". Some comparisons are based on "one day week" arguments. For most clients of domiciliary services, the total care recieved amounts to less than 24 hours per week, yet the costs and benefits of these services are compared to costs and benefits of the 24 hours of residential care per day. All non-agency costs of domiciliary care are neglected (cf. Armitage, 1979; Shenfield, 1957,p.168; Plank, 1977). It is only relevant to make per person per day comparisons if the duration of care is the same for the two services or if the final outputs are measured. There are also "free lunch" arguments - comparisons which concentrate only on expenditures from the public purse or only on visible expenditures. No account is taken of the social opportunity cost implications of the two services, particularly the social costs of domiciliary care as borne by family and neighbours. Are voluntary staff actually free resources? Another deficiency of many studies has been a failure to compare only comparable groups of clients. Often, as argued earlier, services cannot be regarded as alternatives for some clients. This implies a need to adopt a research design (through randomisation or pre- or post-selection matching perhaps) which ensures comparatability between the two groups of clients or services. Related to this deficiency is the

frequent reliance on averages, and particularly average cost figures, when drawing comparisons. Unfortunately, as discussed in chapter 7, there is often a great deal of variation around an average cost figure, attributable to differences in scale, dependency, setting, location, and so on, so that averages cannot be used as measures or indicators for particular clients. But most policy decisions concern either marginal changes or changes which will not ensure that the averages remain the same. The distinction between average cost and marginal cost is important because the two often differ substantially, and it is the latter which our theoretical arguments suggest should be used (see Mooney, 1978, for an application of this).

The first real attempt to examine the relative costs and benefits of residential and domiciliary care, in Britain at least, was the study conducted in Essex by Wager (1972).[31] All previous studies or commentaries are much too partial to be counted as serious evaluations, although the information collected and reported is not without interest (see, for example, Rowntree, 1947; Shenfield, 1957). It is disappointing, however, to find more recent studies or recommendations which appear content merely to repeat these partial studies, complete with their deficiencies (see, for example, Armitage, 1979; Davies & Duncan, 1974). Wager's study was subtitled "An Exercise in Cost Benefit Analysis" which is incorrect and misleading. No attempt is actually made to conceptualise or measure the benefits of residential and domiciliary care, although the dependency of clients was assessed and was used to inform the cost comparisons. On the benefit side Wager actually reviewed two studies of residential care (Townsend, 1962, and Slater, 1968) and one of psychogeriatric care (Whitehead, 1970), and on the basis of such a review concluded "that generally elderly people will experience more satisfaction if they are maintained independent in the community for as long as possible" (Wager, 1972, p.63). Such a conclusion is simply not justified by these studies

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[31] There have recently been a number of reviews of American research into the relative costs and/or benefits (effectiveness) of residential and domiciliary care. Doherty, Segal & Hicks (1978), Lawton (1980, chapter 5), Maddox (1977), Pollak (1976) and Sager (1979) have all conducted reviews of greater or lesser generality and would appear to agree that: "The evidence ... that is needed for generalisable statements about the relative cost effectiveness of institutions and alternative programmes remains to be assembled" (Doherty et al, 1978, p.14). Sager's monumental report provides a comprehensive review of the published and unpublished American research, together with his own comparative findings.

and there is very much more evidence that could have been used in this respect. On the cost side, there is much to commend Wager's study, particularly when it is compared with earlier attempts to compare residential and domiciliary care. It should first be noted that, whilst the study was not based on a random sample of elderly persons, the assessment of dependency allowed Wager to compare costs for those of "moderate incapacity" for whom residential and domiciliary care were viable alternatives. Housing costs for those elderly people receiving domiciliary support were included, estimated on the basis of local house prices and using 5% and 10% discount rates. Family Expenditure Survey data were used to estimate average weekly expenditures on goods and services for different households and different weekly incomes. Taxes were excluded wherever possible because they represented only transfer payments. Not all relevant costs were included, however, the more important omissions being the costs of using voluntary workers, friends and neighbours in domiciliary support services. Wager assumed, in the absence of better information, that these were free resources. The study was also deficient in its reliance upon average rather than marginal cost figures. In view of these various omissions and inadequacies, most of which were recognised by Wager, his conclusions must be treated cautiously. For the record he recommended "the relative diversion of resources in the future away from the expansion of residential facilities into a selective domiciliary care programme for those in substantial need of support" (ibid, p.66). For all its deficiencies, Wager's study is an important landmark in evaluative research in the personal social services.[32]

Plank's (1977) study of the elderly in residential homes, sheltered housing, and private dwellings without warden supervision (further subdivided into those on the waiting list for old people's homes and those considered suitable for sheltered housing) in eight (representative) London Boroughs concentrated less on the costs of care (although these were computed) and more on the capacities and feelings of the elderly themselves. His cost figures covered only the accounting costs borne by

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[32] Wager's study is important for its treatment of costs. Another landmark of similar vintage, important for its treatment of benefits or outcomes, is the study by Goldberg (1970). Because this latter study was concerned with two forms of domiciliary provision ("conventional" and "experimental") it is not examined here.

social services departments and failed to cover social costs incurred
by family, volunteers and so on. Housing costs for the elderly living
outside residential care were not computed, nor were the capital costs
of social service buildings included. These agency accounting cost
figures suggested that residential care was more expensive than either
domiciliary support or sheltered housing when averages were compared.
However, "for residents in homes whom matrons thought could reasonably
be discharged to sheltered housing, it was estimated that it would have
cost £150 more per year to discharge them than to leave them where they
were", but for those residents considered suitable for discharge to
private dwellings "the cost differential in favour of domiciliary care,
though reduced, remained substantial" (ibid, paragraph 2.13).[33] Thus
far, Plank's conclusions represent little improvement over earlier cost
comparisons but the important contribution of his study was the examination
of client characteristics, attitudes and feelings. His survey, which
covered 2238 randomly selected elderly individuals, found that residents
of old people's homes reported lower levels of risk in the event of
night-time illness, markedly more assistance in such self-care tasks as
getting into and out of bed, bathing, washing, dressing and cutting
toenails (after standardising for need), better accommodation (in terms of
bathroom or shower, hot and cold water, inside toilet, and the need to
use the stairs), "substantially lower levels of loneliness", greater
satisfaction with their place of residence and less likelihood of wanting
something else to do with their time than the elderly living in private
dwellings. In some respects the residents of old people's homes had higher
levels of care and accommodation and greater reported satisfaction than
those in sheltered housing, and in other respects they fared less well.
These indications of better quality care and better quality of life are
of course subject to a number of reservations, particularly because the
questions used had not been validated and carried overtones of

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[33] "However, much of the comparable help provided to those in sheltered
housing and in private dwellings without warden supervision came from
sources which are not included in the costs shown in this report, viz.
relatives, friends and neighbours. This is most noticeable in the instance
of the most dependent group living outside old people's homes, viz. those
on waiting lists for homes" (ibid, paragraph 2.18).

needs assessment which may have biased the responses of non-residents. Thus, Plank's tentative conclusions are based on a study which,by the dual criteria of the production of welfare perspective and the cost-benefit methodology, is inadequate in many respects. Nevertheless, his findings "at least raise some warning signs about the current prejudice against caring for dependent elderly people in residential institutions" (ibid, paragraph 2.37).

The most recent, and in many respects the most interesting comparative study of residential and other forms of care for the elderly is reported by Mooney (1978).[34] Mooney looks at three services for the elderly - domiciliary services (including health visiting, home help, meals on wheels), residential services and hospital services (in geriatric wards) using data collected from surveys in Aberdeen. The focus of attention is on the balance of care between these three services (and, in principle though not included here, between other services as well, such as sheltered housing). Costs and benefits of the different care services are defined with specific reference to client dependency levels. Where Mooney's study represents a considerable improvement over earlier studies is in his focus on marginal costs and benefits, his aim being both to apply and to test marginal analysis. If the testing of marginal analysis is successful then only marginal clients need be examined when further research on the comparative merits of residential and domiciliary care (for example) is undertaken. In other words, the theoretical justification of marginal analysis (which follows from the earlier discussion of principles and methodologies), coupled with the proven feasibility of application, would considerably reduce the costs of obtaining reliable information for future policy guidance. It is unnecessary to describe Mooney's study and findings in any detail for they have been alluded to earlier in the chapter and may easily be consulted at source. However, given Mooney's detailed conclusions about the relative costs of care of marginal clients of residential, domiciliary and hospital services, and his implicit conclusion that marginal analysis is useful in these circumstances, it is important

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[34] Two other studies have not yet been completed and it is therefore not possible to discuss them here; these are the comparative studies of Challis & Davies (1980) based at the University of Kent, and of Wright, Cairns & Snell (1979) based at the University of York.

to examine the basis of these conclusions and, in particular, and if necessary, suggest ways in which his approach can be adapted or improved. It should perhaps be stated at the outset that I believe Mooney's approach is useful and that it could be improved.[35] These suggestions concern the measurement of output or benefit, the computation and comparison of costs, and the meaning of "alternatives" and "margins" in care of the elderly, and all of them follow directly from the production of welfare perspective and particularly the arguments of this chapter.

Mooney admits (ibid, p.150) that "in so far as the approach fails to measure output, effectiveness and benefit, it has severe limitations." Of course, a measure of output is adopted in his empirical model - basically, the number of elderly persons receiving a service, from a given care agency, sometimes weighted by the dependency or incapacity of these clients. It is quite clear that this measure is no more than an intermediate indicator of output for it does not adequately reflect either the objectives or the accomplishments of care services for the elderly. What we need are not intermediate, but final output indicators, as argued in this thesis. Mooney's contention that "little is known about the effectiveness of care in the different locations" so that "we are thus left in a position where we cannot measure effectiveness" would not appear to be fully justified in view of the arguments and reviews under-taken in chapter 3 above. Certainly, it is difficult to measure and value the effectiveness and benefits of care, but a reasonable start would seem to have been made. It is most important that we attempt to measure final, and not merely intermediate, outputs of care services, for ignoring final outputs will have a number of serious and possibly damning consequences for the economic approach. In the extreme the intermediate approach would suggest that policy makers adopt a "workhouse" philosophy of care, and certainly might encourage undue emphasis to be placed on material standards of welfare to the neglect of the personal, subjective, aspects. Non-economists in the social care field fear this

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[35] It should be noted that many of the potential improvements to the approach were noted by Mooney (1978) in his original paper or have been acknowledged subsequently (Mooney, 1980). My own comments are presented in more detail elsewhere and are intended to be developmental and supportive rather than critical (Knapp, 1980).

impersonal approach to policy more than any other (and for good reason),
and economists cannot hope to have the sort of influence they should
until and unless they move beyond intermediate indicators.

Mooney's discussion and measurement of the costs of the three care
services studied go beyond most previous attempts at cost measurement in
the personal social services field. Some of the significant resource
inputs into care are not costed but this is recognised and emphasised
in the paper. One important service not included in the list of those
received by elderly persons living outside residential homes and hospitals
is the day care service provided in clubs, day hospitals, and social
centres. Whilst these were felt to be unimportant in Aberdeen in 1975/76
(Mooney, 1978, p.162) they are generally important in most other areas
of the country and would not be unimportant in either cost calculations
or decisions as to whether an elderly person needs to enter a home or
hospital. My comments here do not concern the other omissions (such as
non-agency costs) in Mooney's cost calculations for these are recognised
and, in principle, at least, easily rectified. Some have been rectified
in practice by, for example, Wager (1972). Instead they are intended
to substantiate two hypotheses in Mooney's paper, thus adding weight to
his approach, and also to argue that in attempting to compare "like with
like" he has not really gone far enough on the cost side.

Firstly, Mooney assumes (p.151) that "as the dependency of an elderly
individual ... increases so it may be assumed, ceteris paribus, that the
costs of support for this individual will increase". The research reported
in chapters 7 and 9 above, and the previous research reviewed in support
of it, suggested just such a positive association between dependency
and costs of care. Whilst the measurement of dependency is problematic
it would seem quite possible to use these studies to plot the cost-
dependency relationships needed for Mooney's model. Of course, I am
arguing that we should go beyond these intermediate concepts, but if an
intermediate stance is temporarily accepted these studies might aid the
decision-making process.

A second and related assumption of Mooney's analysis is that "only
caring staff time is assumed to vary with dependency" (p.161). This

assumption would appear to be valid if the term "care staff" includes not only the conventional care assistants but also matrons and other supervisory staff. Imber's (1977) principal component and discriminant analyses of the tasks performed by the staff of old people's homes suggest that both care and supervisory staff time vary with dependency, the former relationship being stronger and more direct. Further evidence to support this assumption was presented in chapter 9 above, although it is important to remember that the influence of resident dependency on staff requirements was found to be mediated through characteristics of the design of homes. Of course, the reason that Mooney looked at staff-time was to get an indication of the costs of caring for clients of different degrees of dependency. These costs are, however, more reliably estimated through a cost function analysis which allows, among other things, the allocation of joint costs.

This leads on to a third and more general point about costs: Mooney has not taken adequate account of the many factors which influence the costs of care within a sector. We know, for example, that the cost of caring for a heavily dependent elderly resident of a home varies, albeit slightly, with the size of the home, and that the costs of residential care have also been found to vary, often very substantially, with differences in admission rates, occupancy, geographical location, and such client characteristics as age, sex and marital status (chapter 7 above). Some of these factors may not alter the policies recommended for the balance of care in Aberdeen, but others probably will, and if we are to adhere to our usual ceteris paribus rule then we must include them through a cost function analysis. Given the sensitivity of policy recommendations to differences in cost this standardising procedure may well alter the recommended balance of care. Once again, however, we are forced back to our discussion of final and intermediate outputs. If we accept the need for final output measures then it is these that should be entering our cost function and not merely intermediate indicators like the number of residents and their dependency characteristics.

Mooney's major contribution is his demonstration of the usefulness of marginal analyses in determining the balance of care and it is therefore important to examine his definitions of margins and alternatives. Implicit in the approach is the assumption that the three included services, and presumably other omitted services, are not substitutable for all elderly

clients. For some people there are no suitable alternative forms of care. This is clearly realistic, but it is important to stress the very large number of other alternative forms and "packages" of care which local health and personal social services authorities currently use in providing for elderly people in need. There is also the very complex problem of "flows" of elderly clients between voluntary, private and statutory services, particularly residential homes, and the financial obligations of local authorities in providing support. One can conceive of a continuum of care, so that the balance of care problem becomes a continuous rather than a discrete allocation problem. It would probably not be difficult to extend the balance of care model in this direction. One would also hope that sheltered housing services would be included in the model; these services are eminently substitutable for residential and hospital services for many elderly persons but were omitted by Mooney.

Of rather more importance in this regard are the assumptions regarding those elderly people felt to be on the margin for a particular care service. There are two points about Mooney's assumed margins which should be noted. Firstly, the waiting list is generally not held to be a very reliable indication of either need or demand for residential care; rather it is often a device used to appease concerned relatives and to exert pressure on local authority policy makers. In most areas of the country, a large proportion of admissions to residential homes are emergency cases and over a quarter of new residents are admitted from hospital. Confining the margin to elderly people on health visitor case-loads will thus leave a substantial element of need uncovered (cf. Bebbington & Davies, 1980a). Secondly, because flows of elderly clients between care locations are not unidirectional, cost comparisons between services are not going to be straightforward. For example, many local authorities would pursue rehabilitative policies for old people's home residents were it not for the fact that many residents sell or give up their own homes upon admission to residential care or hospital and are thus unable to move back to the community at a later date without considerable difficulty. In other words, the difference in the cost of care when the client moves from community to residential home will generally be different from the negative of the cost difference when the client moves from residential home to community. Cost differences are inherently asymetric and Mooney's

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approach therefore requires a balancing of costs and benefits in both directions.

11.4 Conclusion

This discussion of cost-benefit and cost-effectiveness analyses provides a useful framework for the consideration of the relative merits of residential and domiciliary services for the elderly. The discussion could also have been directed to illuminate the relative merits of, say, statutory and non-statutory provision of social services (and hence the privatisation of welfare), or to assess alternative modes of care within homes (such as the group unit design), or to evaluate a new innovation in the delivery of care services "in the community", or to examine any one of a whole host of policy questions. The discussion of cost-benefit and cost-effectiveness analyses and their illustration in this way also provides a useful summary or synthesis of the production relations or production of welfare approach to the study of the personal social services. Most of the important elements of the production relations approach are employed in the application of cost-benefit and cost-effectiveness analyses, and in the application of a number of other techniques, some of which were examined in chapters 6 to 10. The production relations perspective on the personal social services, as applied here to residential care services for the elderly, can thus serve as a valuable and flexible policy tool.

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