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The Economics of Informal Care of the Elderly

by
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of the Elderly

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ABSTRACT

This paper is concerned with the costing of informal care which is the unpaid help provided, in this instance, to an elderly person by relatives and friends. Economic appraisals of alternative ways of caring for elderly people have frequently been unable to cost this input although it has often been the major source of help for elderly people who are satisfactorily maintained in their own home.

A review of the economic theory of the allocation of time is used to set up three potential methods of evaluating informal care - payment of state benefits to carers, the costs of appropriate public services and the valuation of time used in the appraisal of investment in different forms of transport. Each of these bases is assessed in accordance with the theory which under-pins it, its use in economic appraisals and its applicability to costing alternative patterns of care for the elderly.

It is argued that amongst informal helpers there is a variety of attitudes to the work involved, of household circum-stances and of opportunities gained or lost. Thus, one value is unlikely to cover all eventualities and there is a need to experiment with a mix of valuation procedures. The effect on the costs of community care for elderly people of using different approaches is illustrated from one study of alternative patterns of care for the elderly and the following important points emerge from the exercise:

-       For some principal helpers, all the caring they undertake is a pleasant and acceptable use of their leisure time.

-       The acceptability of the caring role appears to depend on the closeness of the relationship between helped and helper.

-       The valuation of time as used in transport appraisals is probably the method which is closest to the carers' valuation of their own time.

-       Carers can often be kept happy in their work for quite small amounts of weekly expenditure on suitable public services.

CONTENTS

THE ECONOMICS OF INFORMAL CARE OF THE ELDERLY

I. Background

This paper is concerned with the value of informal help
and the way this has been and might be used in economic appraisals.
Informal care is taken to mean the care provided to dependent people
in their own homes by relatives and friends who are not paid (apart
from attendance or other social security allowances in certain cases)
for the help they provide. This definition is taken to exclude the
help and care provided by people working as volunteers within voluntary
organisations so that informal care is meant to indicate the lack of
either formal organisation or pecuniary reward.

The importance of informal care to the welfare of many
groups of chronically sick and disabled people of all age groups has
increased over the last ten years or so, particularly with the
growth of the number of elderly people in the community, the sub-
stitution of institutional care by community care and the realisation
of how the caring role has affected social and employment opportunities
for women (Parker, 1984 Finch and Groves, 1983). There is little doubt
now that these studies have demonstrated that informal care is
costly in terms of real resource use and financial hardship placed
on families. However, economic appraisals of alternative forms
of care have struggled to incorporate this resource use and its
costs into analyses and, as yet, it remains a subject whose importance
is acknowledged without ever being discussed with the thoroughness
it deserves. This unfortunate neglect is understandable to anyone
who has tried to grapple with the variety of situations in which
informal care is a major input. In addition, many appraisals have
to encompass a wide range of alternative forms of care using a mix
of services from different statutory agencies as well as from
voluntary organisations to such an extent that there is usually
just time to cost the most routine inputs and the extraordinary
effort needed to measure the cost of services which are not provided
publicly or paid for privately has to be deferred for further
consideration.

The background to this paper is a study of alternative
patterns of care for elderly people which was undertaken in 1976-
1978 in which the major costs of public services had to be included
to the neglect of costs from the informal care sector. Neverthe-
less, the social survey which formed a part of this study contained

information gathered from a sub-sample of people who provided
regular (at least 5 hours) weekly help to an elderly person in the
main study. The relative costs of the alternative forms of care
have been reported elsewhere (Wright, Cairns and Snell, 1981) and the
aim of this paper is to analyse the data from the survey of principal
helpers and to use them to suggest an approach to evaluating informal
care in other appraisals.

The main thesis of this paper is that the time of informal
carers is treated by the public authorities as a free good when in
fact the use of this resource imposes costs on these individuals.
Thus the starting point of the paper is the economic theory of the
allocation of time and the application of its characteristics to
time spent caring. These characteristics are also used to analyse
the relevant data from the survey mentioned in the above paragraphs
in order to show how values of time might vary with different circum-
stances. Different bases of evaluation are then explored to test
their suitability for use in economic appraisals of different forms
of care. The paper is concluded with some suggested approaches
to costing informal care according to the particular context of the
economic appraisal being undertaken.

II. Economic theory and the allocation of time
    Alternative uses of time
        The obvious basis for the evaluation of informal care is the
economic approach to the valuation of time suitably amended to en-
compass the special aspects of caring. Although a considerable amount
of economic literature is concerned with time in the sense of un-
certainty and the choice between present and future satisfaction,
the approach used here is akin to the problems which Sharp (1981)
calls the theory of time allocation. This theory is concerned not
so much with the valuation of time per se but with the way in which
individuals allocate available time between activities in order to
maximise utility. Sharp develops his model in terms of an increasing
complexity of the range of activities available and of variations
in the time and money constraints which limit the choice of activities
The model takes as the simplest case the choice where individuals
(like multi-millionaires) are constrained by time but not by money.
In the absence of a market-goods constraint and of indivisibilities

all the activities have the same unit time price and utility is
maximised where the marginal utility of the last small unit of
time that can be allocated is the same for all activities:

$$\text{i.e. if } U = U(t_1 t_2 \ldots t_n)$$

and the time constraint for each day in minutes is

$$1440 - \sum_{i=i}^{n} t_i = 0$$

the utility is maximised where

$$\frac{\partial u}{t_1} = \frac{\partial u}{t_2} \ldots = \frac{\partial u}{t_n}$$

where the t_i are the time allocations to a set of activities a_i
assuming that no two activities can be pursued at the same time and
that each activity yields diminishing marginal utility over the
short time period.

Although this case is developed for the special case where
the market goods constraint is irrelevant, there are many examples
in the data below where caring is regarded as a leisure activity and
time is allocated to it like any other activity and there is no
monetary cost involved.

The next variation in the model occurs where the consumer
is faced with a money as well as a time constraint. In this case
the consumers maximise activity from the t_n activities subject to

(a)   a time constraint $\Sigma t_i = Y$
(b)   a money constraint $\Sigma p_i = B$ (which is not a function
                                of the choice of activi-
                                ties).

The utility maximising equilibrium position is represented by

$$\frac{\partial U t_1}{P_1} = \frac{\partial U t_2}{P_2} \ldots = \frac{\partial U t_n}{P_n}$$

The third development of the model is to encompass an
activity such as work which takes up part of the time budget but

serves to ease the monetary constraint. In this case, as has
been shown in theories of labour supply (Layard and Walters,
1978), activities have both time and market input costs so that
the individual's budget constraint takes the following form (Layard
and Walters, 1978, p.309):

$$(p_1 a_1 + wt_1) \ Z_1 + (p_2 a_2 + wt_2) \ Z_2 = 24w + y^o$$

where the $p_i a_i$ are the market price per unit of output of the
activities Z_i

        t_i are the time inputs into the activities Z_i

        w is the wage rate

        y^o is unearned income

Caring can be fitted into these models in two main senses:

     (a)   As a leisure activity in competition with other
              leisure activities.

     (b)   As an activity in competition with work activity
              which would have a time price equal to the wage
              rate multiplied by the time spent caring.

These two trade-offs are familiar and have been
examined extensively in the appraisal of investment in road and
other transport systems. The data in Section IV show a number
of examples where carers are quite happy to give freely of their
leisure time and would have been bored and discontented without this
type of activity. For them the opportunity cost of leisure is low.
In other cases where carers are heavily strained by the time and effo
devoted to their charges, leisure time has a high opportunity cost.
Retired people not seeking employment are very well represented in
the sample, so that it is no surprise that their main concern is loss
of leisure opportunities. There is a marked lack of people in younge
age groups who suffer loss of employment opportunities, but this is
due to the difficulties of obtaining information from people in
this group and other studies cited have shown that the high cost
of lost working opportunities is a major problem for many carers.

The value of time used in transport appraisals is therefore
one basis which could be used for costing informal care and this is
placed on the agenda for Section IV. Before looking at

this approach it would be useful to look also at another basis
which is derived from the utility or disutility experienced by
both patients and carers.

In particular, it would be useful to look at the notions
of specific and composite utility and direct and indirect utility
arising out of the use of time (Sharp, 1981). Specific utility is
that utility which is obtained from the time spent directly on a
chosen activity (e.g. playing golf). Composite utility is that
utility which is gained from those activities which are necessary
complements to the chosen activity (e.g. travel to and from the golf
course and changing clothes). The main relevance of this distinction
to caring is the need to take account of costs of travelling where
carer and patient do not live in the same household.

The concepts of direct and indirect utility have been used
to explain why people may undertake unpleasant activities without
receiving payment in cash or kind. Direct utility is the utility (or
disutility) experienced from the performance of an (unpleasant)
activity. Indirect utility is the benefit which stems from the results
of that activity. Thus negative direct utility may be suffered in carrying
out household chores such as decorating a room or clearing a drain
but this is offset by the indirect utility of enjoying a clean house
or a free-flowing drain. This distinction is most important when
looking at the choices facing carers and the methods of evaluation
that could be used to incorporate the costs of informal care into
economic appraisals.

A first approach might be to examine what are the indirect
and direct utilities produced by caring. The indirect utility is
the set of benefits enjoyed by the patient mostly in terms of
personal and domestic comfort. The carer will also derive satisfaction
from such a product. The direct utility may be either negative or
positive. Many carers expressed the opinion that activities such
as shopping, cooking, housework and personal care routines were a
pleasant use of leisure time. Equally, there were many people who
found these tasks unpleasant and irksome. It may be argued in this
latter case that the positive indirect utility more than counteracts
the negative direct utility to produce net positive utility, other-
wise the carers would not continue with their tasks. However, this

argument deserves further exploration. (See pages 10-11).

This approach has been used to value non-market activities (Hawrylyshyn, 1976) in the manner set out in Diagram 1 below :-

<div align="center">Diagram 1</div>
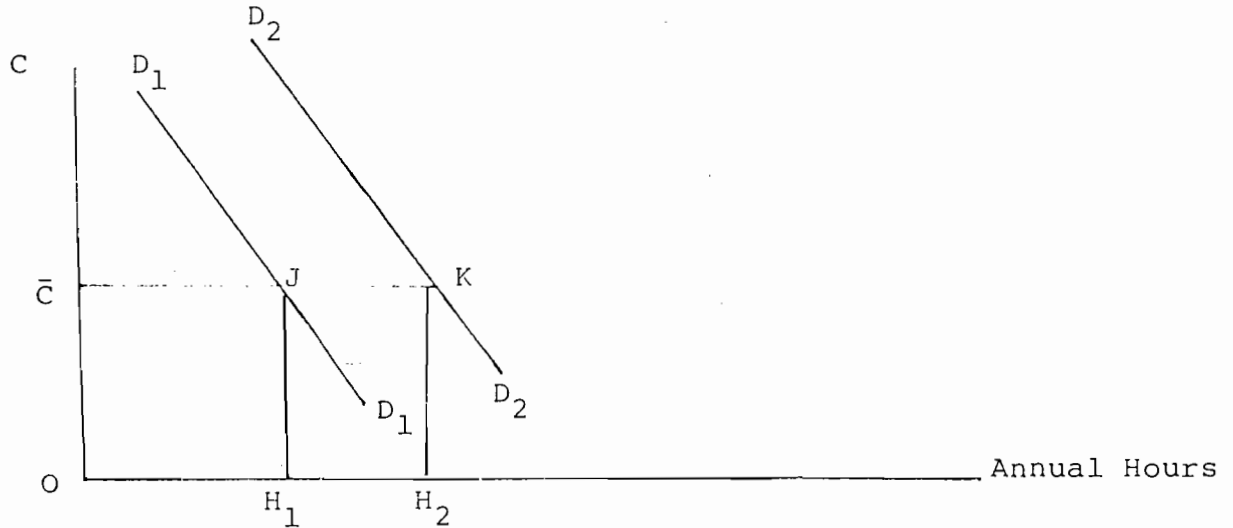
$D_1 D_1$ is the demand for time to be allocated to care based on the minimum time that could be used to produce the required level of benefits. If the opportunity cost of time is $O\bar{C}$ the person devotes OH_1 hours per year to the caring activity. If someone also derives positive direct utility from these caring inputs the demand curve would take the position of $D_2 D_2$. The indirect utility is represented by the area $O\bar{C} JH_1$ and the direct utility by the area $H_1 JK H_2$. It is then argued by Hawrylyshyn that in valuing non-market activities only the indirect utility should be counted. Thus the benefits to the patient are counted but the pleasure (in this case) experienced by the carer is not valued.

This analysis was then used to define an economic service as "one which may be done by someone other than the person benefiting therefrom". (Hawrylyshyn,1977,p.87).If an activity can be achieved by employing someone to undertake it, it produces indirect utility, if not it produces direct utility which is not to be evaluated". Such an approach could greatly simplify the evaluation of informal care. The implication is that the value of informal care is equal to the opportunity cost of the time used by an appropriate hired hand to carry out the required tasks. Thus, there is a second

basis to add to the agenda for the next section.

III. Potential bases for costing informal care

1. Introduction

The purpose of this section is to examine different approaches to costing informal care in terms of both the appropriateness of their methodology and the feasibility of their application to economic appraisals of alternative forms of care. The main steps in this examination will consist of setting out the costing basis concerned together with examples of its use where possible in existing studies, identifying the general problems of the methodology and the relevance of these to the purposes specific to this exercise with illustrations from cases in the data set reported in the last study. The main approaches to be considered in this way are:

i) the cost of similar services provided by the public sector or purchasable from the private sector.

ii) the payment of state benefits to carers.

iii) the value of time spent travelling.

Before looking at the theoretical bases of these approaches and the problems of applying them in practice, it would be useful to examine two general aspects of evaluating informal care. The first aspect is the problem of accurately identifying the time spent caring. Often principal helpers carry out activities on behalf of several members of the same family so it is difficult to distinguish the time that should be allocated to any individual member. Cooking is a good example since it is often just as easy to provide a meal for five persons as for four and it would be difficult to estimate the extra time involved in cooking for the fifth person.

In some cases a helper may spend time visiting a disabled relative and carrying out much the same set of activities which were undertaken before the onset of the disability. A son or daughter visits parents as part of the social round and the frequency and duration of these visits may not differ even if one or both parents become disabled. These instances have to be distinguished from those where the frequency and duration increases with disability since in the former case the trade-off is one between leisure activities

and no opportunity-cost of caring is involved whereas the loss of
social or work opportunities in the latter case implies that the
carers are bearing some costs. The key question is how much extra
time is being given over and above that which would be given if
neither parent were disabled.

A third example arises where care involves "just being
there" or surveillance. In fact, for carers reporting problems
about lost social or leisure opportunities it was this need to
remain in the house which was causing their major dissatisfaction.
However, it is difficult to say how much of this time is to be
classified as "caring time", since it is possible that for some
of this time the helper may be able to pursue some home-based
activity that would have been undertaken irrespective of the presen
or absence of a disabled person.

This problem of the identification of the time involved
has to be kept in mind as each approach to costing informal care
is examined in the following sections.

The second general point about caring is concerned with
whether carers can choose the amount of hours of care per period
they wish to supply and the criteria they would use to make
such a decision. This point is illustrated in Diagram 2 below
where MV is the marginal valuation of a carer's weekly delivery of
care. On grounds of efficiency the optimum number of hours supplie
would be where the marginal cost was equal to the marginal valuatio
of hours of care, in effect at OL_1 hours of care in the diagram.

Diagram 2

Marginal Cost /
Valuation

MC

O

L_1 L_2

Hours of care
per week.

MV
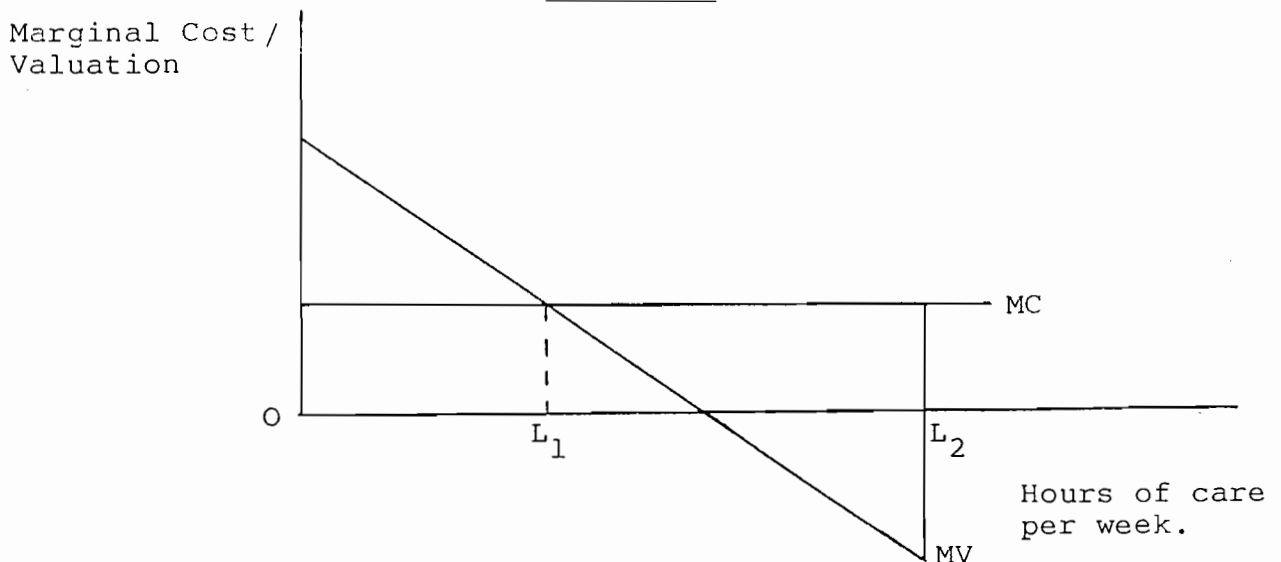
Although many carers in the sample reported that they were happy
with the hours of care they were providing which may be taken to
mean that they were at some point represented by OL_1 hours of care
per week, nearly as many felt that they were more at points repre-
sented by OL_2 where the marginal valuation was well below the marginal
cost. The question is whether there is something in the caring
process which prevents carers from maximising the net benefit from
number of hours of care provided, or whether a different criterion is
being applied by the carers themselves such as operating until total
cost equals total valuation instead of where net benefit is maximised
or whether, for example, the data are failing to cover the range of
decisions which carers have to make. One aspect which is certainly
missed by these cross-sectional data is the trade-off between current
disutility with the work and future utility arising from the content-
ment and pride carers might feel knowing that, despite the personal
hardships and problems faced, they carried out their role to the very
limits of their abilities. This is a close parallel to the idea of
direct disutility and indirect utility stemming from caring except in
this case the benefits of the activity continue after the caring ceases.

The second omission is an evaluation of the net benefits of
continuing versus discontinuing care. It is possible that although the
net benefits of care might be small over a particular period the net
benefit of transferring patients to institutional care are even smaller.
The preference for moving people to institutional care may mean placing
the decision about caring into a dichotomous "to care or not to care"
framework. Some studies have suggested that certain groups of carers
(e.g. carers who are not spouses, live in separate households, are
in younger age groups or are in employment) make decisions in this way
(Gilhooly, 1986). However for most of the people in our sample (which
contains a majority of spouses or close relatives living in the same
household as the patient) their preferences were concerned with
reducing the number of hours of care they provided rather than with
continuing or withdrawing from caring. For these people there were
two main reasons why they did not achieve their preferred supply of
effort. One reason was that the adjustment of hours of care was under
the control of the social care agencies who have a perception of the
costs of informal care which differs substantially from that of both the
carers and the community at large. This was particularly true where
managers in social care agencies attempted to minimise expenditure on
their budgets and treat the informal help as a free good. There were

many examples in the survey of carers who had suffered a reduction in the help they obtained from the social services because of budget restrictions and those who had been refused extra help on the same ground

Secondly, some carers may not know what alternative forms c help are available and the literature on informal care contains many examples of this ignorance (see for example Wheatley, 1980).

The implications of all this for the evaluation of informal care are that first of all payments made to carers in compensation for loss of leisure or working opportunities are unlikely to reflect the marginal rate of substitution between time spent caring and time spent on other activities and, secondly, that the observed mix of formal and informal help in many appraisals of existing patterns of care will not be the most efficient one.

2.   The payment of state benefits

Many carers are entitled to claim a weekly allowance from the Department of Health and Social Security when their caring activities prevent them from taking up employment. However, this payment is restricted to people of working age and as the data in Section IV shows, many carers of elderly people have retired from paid employment. For carers who are eligible and claim this invalid care allowance it could be argued that they consider the allowance to be an adequate reward for their labour and is therefore the appropriate value to use in appraisal involving informal care. The main effect of this payment is to reduce the opportunity cost of lost working time, but it does not reflect the marginal valuation of caring time unless carers who receive it are providing that amount of care which maximises the net advantage of the time used. Nobody in the study sample was receiving this care allowance, but it must be remembered that the sample contains relativel few people below retirement age and seeking employment and the study was undertaken before women became eligible to receive the allowance. Thus, the use of this allowance as a value of informal care is of limited usefulness. A more robust valuation is needed to reflect the variety of circumstances facing carers and the differing attitudes they have towards their work.

3.   The value of formal, statutory services

One rationale for using the value of an equivalent substitut statutory service as a method of measuring the cost of informal care was explained in an Australian study of domiciliary versus nursing home

care for elderly people (Philips, 1981) "... the value to society of
the carer's time and the cost of the services they supply can be measured
by the wage rate which would be paid to a paid worker to provide a
similar service for the client ... in the absence of these unpaid
resident carers, society would have had to pay somebody else to care
for the person, as when a person is institutionalised following the
death of his spouse, (page 75)."

The other rationale is concerned with the distinction
between direct and indirect utility. Following the analysis set out
in Diagram 1 on page 6 the value of the indirect utility (in effect
the benefits of the care provided) is measured by the expenditure on a
relevant alternative social service. However, the example shown in
that diagram referred to the case where the unpaid labour enjoyed
positive direct utility which in effect was not valued. In some
cases caring activities will follow the same example because carers
enjoy their task. In other cases, carers will experience negative
direct utility and the question arises whether this should not be
valued as in the previous example. It is possible to argue for not
valuing this disutility on the grounds that it is the output or indirect
utility of caring that is being evaluated and not the input. Valuing
the input, though, is important in economic appraisals because the
aim is to identify the least cost method of producing an output. In
diagram 1 the least cost method of producing the indirect utility was
to use the opportunity cost or wage of hired labour and the extra
input and cost of the unpaid labour was ignored. The opportunity cost
of caring might be well below the opportunity cost of alternative paid
labour because principal helpers are losing leisure rather than
working opportunities, and therefore, the value of appropriate social
services does not reflect the least cost methods of producing the
benefits of a given amount of care.

4.   Opportunity cost of working and leisure time
        Since appraisals of alternative transport modes have develop-
ed a valuation of time based on the opportunity cost of lost working
and leisure hours, there is a natural parallel for adapting this metho-
dology to the time spent caring. This parallel seems even more appro-
priate when these transport based appraisals have developed a value
for different qualities of time sacrificed (distinguishing for example
between in-vehicle time and time spent walking or waiting for transport)
because carers often have quite different attitudes to the various
tasks they have to undertake (for example carrying out household duties
such as cooking compared with personal care tasks such as bathing or

dressing someone). The valuation of these different opportunity cost
is not a valuation of time as such, but as Layard and Walters (1978)
point out (page 309):

"... people are never concerned with the value of time as
such (unless considering the issues of birth or death); instead they
are concerned with the differences in value attaching to using time i
different ways".

The methodology of valuing travelling time was explained
by the Leitch Committee (1978, pages 18 + 19).

"All time savings are taken to be of value and are divided
between working and non-working time. On average, 80% of the quantif
benefits form a typical trunk road scheme are derived from time savin
If working time si saved, it is assumed that an opportunity arises
for extra productive activity which is of value to society as a whole
If leisure time is saved the benefits accrue to the individual. In a
far as he finds this extra time of value to himself it is counted as
social benefit in the analysis".

Working time is valued at employer's cost (including employ
ment overheads such as national insurance). Leisure time is valued
at 25% of working time value. This proportion was determined as a
result of special studies of the way people make choices between extr
time saved in travelling and higher costs of travel. In addition a
distinction is made between the value of time travelling in vehicles
and time spent waiting for transport or walking. The relevant values
of non-working time are set out below (Leitch, 1978, p.18).

Values of non-working time (1976 prices)

Non-work time	pence
In-vehicle time	36
Walk/wait time	72

A number of criticisms have been made about the methodology
of the valuation of time in transport studies. Firstly, the working
time lost is valued in terms of the employers' lost benefit rather
than the workers' willingness-to-pay for working rather than
travelling time. However, it could be argued that working time saved
results in higher productivity for society as a whole to enjoy and th

this is best represented by the marginal productivity of labour
which is equal to the employers' hiring cost. (Adjustment also
has to be made for increased profitability and for unemployment
rates).

Secondly, transport studies use a standard equity value
for non-work time savings on the grounds that non-work time saved
is the same for everyone irrespective of income. Criticisms of
this have pressed for a distinction between non-work time such as
journeys to and from work and journeys undertaken in leisure time.
Thus the Leitch Committee (1978 page 102) took the views that it
was incorrect to assume that "high income car commuters, say on
the M4 into London or in the neighbourhood of Birmingham, should
be attributed the same time values as holiday makers in the West
country".

The third major criticism on the valuation of time which
is relatively unimportant to the time spent caring is that small
savings in time are less valuable per unit than large savings in
time. Thus savings of a few minutes are not worth much to people
since they present very limited opportunities to choose other
activities whereas savings of large amounts of time are very
valuable because they allow much greater variety of choice of activity.
However, carers usually spend very large amounts of time helping a
disabled person. The problem of caring is that the opportunity
cost of time is likely to increase as the marginal valuation of
hours spent caring decreases.

The most fascinating aspect of attempting to parallel these
costing procedures is the way in which the value of time varies
according to the activity a person is undertaking. In the transport
example values for the use of leisure time spent "in-vehicle" are set
at half those of time spent waiting or walking. In the sample re-
ported in Section IV the most likely uses of time which might
deserve higher than average costing are hours of lost sleep, dealing
with incontinence and to a lesser extent dealing with personal
tasks such as bathing, dressing and feeding. An attempt has been
made to ascertain how well helpers tolerate these different activities
(Sanford, 1975) and the results indicated that only 16% of helpers
could tolerate regular sleep disturbance, 22% could tolerate helping

with toileting, 67% with feeding and 77% with dressing. Such
figures of course need more refinement but if they were generally
applicable the weighting of leisure time lost might be developed
as follows <u>purely by way of illustration</u>.

The principle behind this hypothetical example would be
a weighting system devised for example by adjusting the time spent
on the activity by a factor which represented the tolerability of
that activity. Thus, the weighting could be for example $\frac{100}{x}$ where x
is the percentage of people able to tolerate the activity.

If, as in transport studies, loss of leisure time generally
is valued at 25% of working time and that loss of sleep is tolerable
to only 16% of carers, then the value of care given in the night would
be set at (100/16 x 25)% of working time which approximates to
150% of working time. The value of time for carers dealing with
doubly incontinent patients would be (100/43 x 25)% of working time
which approximates to 60% of working time. Similar calculation
suggest that time spent helping a patient who is not doubly incontin-
ent but needs help with washing or dressing or feeding might be
valued at 33% of working time.

The problem with this procedure would be to ascertain how
much time a carer spent on each particular task. As previously
indicated, it is difficult enough to determine the total time spent
caring without having to disaggregate into different types of
tasks. Certainly, this method could only be used in economic
appraisals which include a detailed survey of principal helpers
and the way in which they spend their time.

Despite these problems the opportunity cost of time offers
a promising way of evaluating informal care and a research effort
is needed in this field on the same scale as was applied to cost
benefit studies of investment in transport. This approach would
allow economic appraisals to take into account the wide variety of
circumstances, and therefore costs, which face principal helpers
and to determine the efficient mix of informal and formal care to be
provided for disabled people. An example is shown in Diagram 3
below. A person needs oh_3 hours of care per week and the costs of a
carer who loses work opportunities is shown by the marginal cost

Diagram 3.
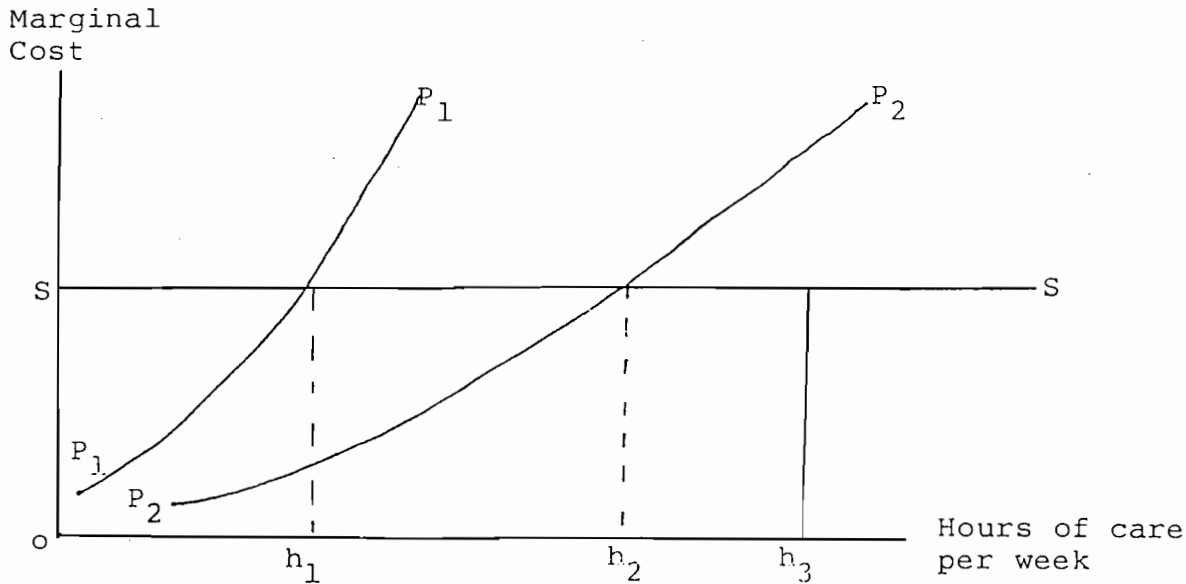
curve P_1P_1 while the marginal cost to a carer who loses leisure
time only is shown by the curve P_2P_2. These curves rise because
of diminishing marginal valuation of time spent caring and because
the tasks become more difficult as more help is needed. The marginal
cost of an alternative, equally effective, form of social service
care is SS and is constant over all hours of care. This is not
unusual in labour-intensive domiciliary services (Wright, Cairns
and Snell, 1981). The efficient mix of service delivery for P_1P_1
is to provide Oh_1 hours of informal care and h_1h_3 hours of social
care and for P_2P_2 to provide Oh_2 hours of informal care and h_2h_3
hours of social care.

5.   Possible Short-cuts

        Given that an accurate measure of the cost of informal
care requires a new research programme it would be useful to ask
whether there are short cuts which might be acceptable in appraisals
which cannot wait for the results of such a programme. There are
several possibilities. One is to use different bases such as the
ones set out in Section III and test the sensitivity of the
results of the appraisal to these different approaches. This
suggestion is explored further in the next section.

        A second approach would be to look at the costs of informal
care in a rather different perspective which is in effect to analyse
how alternative forms of care for the elderly relieve the burden on
principal helpers. Although it may not be possible to fully evaluate
the costs of informal care it may be possible to test whether

different forms of care change carers' attitudes to their work.
For example in the data reported in Section IV many carers were
quite happy to continue with their task. This is not to say that
they experienced nil opportunity cost, but rather that the net
benefit of the foregone opportunity was less than the net benefit
of caring. Thus, if the delivery of a set of services allows a
carer to use his or her time in a more preferred way and therefore
reduces the cost of caring such that the net benefit of caring becomes
greater than the net benefit of the next best alternative, the carer
becomes a willing and contented helper. This point is analogous to
the example given in diagram 2 on page 8. The carer is helped to move
to the point where his or her marginal valuation of the time spent
caring is equal to the marginal cost. It may not be possible to ident
the whole of the marginal cost or valuation curves, but it may be
possible to identify the hours (OL_1) at which net benefit is maximised

Identifying points such as OL_1 requires a sensitive pre-
scription of a suitable set of services probably using a key worker
who can allocate help as required. A useful model has been developed
in the Kent Community Care Scheme (Challis & Davies, 1980). Other
intensive domiciliary care schemes have also shown how an effectively
organised package of services can maintain elderly people at home to
everyone's satisfaction (see for example Gibbins et. al. 1982 and
Tinker, 1984).

In effect, this approach is treating the relief of distress
amongst elderly people and their carers as an outcome of alternative
forms of care. A development which needs further research would be
to apply the methodology of cost per quality adjusted life years to
each alternative (Williams, 1985). This approach is illustrated in
Diagram 4 below. Qualify of life measured in terms of distress-free

Diagram 4
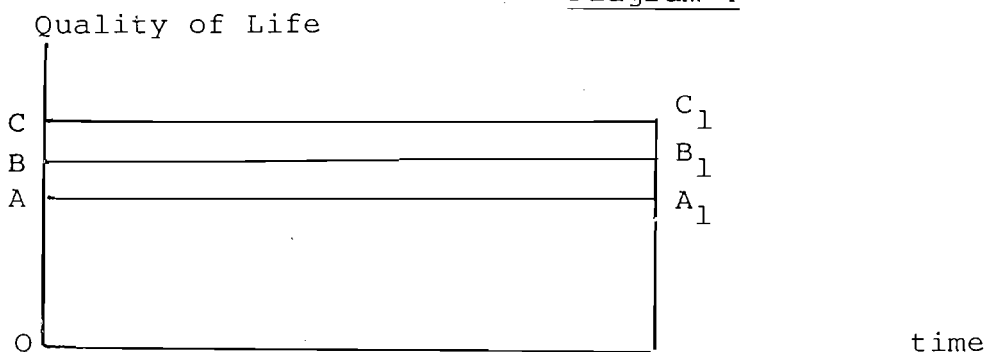
Quality of Life

social functioning is measured along the ordinate and time along the abscissa. The lines AA, BB and CC represent the different qualities of life for carers provided by alternative forms of care for elderly people. Each form then needs to be costed so that decision-makers can be given the costs of achieving the areas OAA T OBB T and OCC T in order to choose the maximum gain in quality of life for a given expenditure. At present, it is only possible to talk about this approach in principle, considerable methodological and empirical work is still needed to make it a practical proposition.

There are therefore, several different approaches to assessing the costs of informal care. Which approach is most suitable depends on the context of the analysis. If, for example, an appraisal were concerned with the effectiveness of an intensive domiciliary care scheme in maintaining an elderly person at home, it would be approp- riate to identify the costs of services which kept the principal helper at the point where the marginal valuation of the hours of care was equal to their cost, because that would indicate an optimum mix of informal and formal care had been achieved. For example in a study of augmented home nursing for elderly people it was shown how an intensive domiciliary care scheme kept elderly people out of hospital, and maintained a satisfactory standard of life for principal helpers at weekly costs below those of continuing care in hospital. (Gibbons et al 1982).

However, if the appraisal were concerned with the costs of the existing patterns of service delivery which includes a mix of formal and informal care (as was the case in the original study on which this paper is based) irrespective of whether the amount of service provided per person per period ensured a satisfactory life for principal helpers, then it would be necessary to impute a value to all the informal care provided. The next section gives a good illustration of this because it shows how the cost of community care of elderly people is very much related not only to the dependency of the elderly person but also to the opportunities lost by principal helpers.

IV. Examples of the use of different valuations

1.   The data set

The data on the characteristics of the principal helpers included in the survey are set out in Tables 1 to 6 overleaf. Since the sample is not in any way representative of carers, it is not possible to generalise about these characteristics to the population of carers as a whole. The main purpose of the tabulations is to divide the sample of carers into two main categories: those who were coping and those who had problems.

Table 1   Total Sample by Gender

Male	Female	Total
72 (38.7%)	114 (61.3%)	186

Table 2   Household Types

	No.	%
2 person (spouse) households	78	41.9
Same household (not spouse)	46	24.7
Separate households - (relatives)	46	24.7
Separate households - (friends)	16	8.6
	186	

Table 3   Household type and ability to cope

Household type		Coping			Having problems		
---	---	Male	Female	Total	Male	Female	Total
Spouse	*	14 (7.5)	12 (6.5)	26 (14.0)	31 (16.7)	21 (11.3)	52 (28.0)
Same household (not spouse)		13 (7.0)	7 (3.8)	20 (10.8)	8 (4.3)	18 (9.7)	26 (14.0)
Separate household (relatives)		4 (2.2)	16 (8.6)	20 (10.8)	2 (1.1)	24 (12.9)	26 (14.0)
Separate households (friends)		–	16 (8.6)	16 (8.6)	–	–	–
		31 (16.7)	51 (27.4)	82 (44.1)	41 (22.0)	63 (33.9)	104 (55.9)

* % in brackets is the % of the total sample (n = 186)

Table 4   Ability to cope by household type - male carers

Household type	Copes	Has Problems	Total
Spouse	14 (31.1%)	31 (68.9%)	45
Same Household (not spouse)	13 (61.9%)	8 (38.1%)	21
Separate Household (related)	4 (66.7%)	2 (33.3%)	6
Separate Household (friend)	–	–	–
Total	31 (43.1%)	41 (56.9%)	72

Table 5   Ability to cope by household type - female carers

Household type	Copes	Has problems	Total
Spouse	12 (36.4%)	21 (63.6%)	33
Same Household (not spouse)	7 (28%)	18 (72%)	25
Separate Household (relative)	16 (40%)	24 (60%)	40
Separate Household (friend)	16	-	16
Total	51 (44.7%)	63 (55.3%)	114

Table 6   Major problems in households not coping

Problem	Males Household Type				Females Household Type				Gra Tot
Problem	Spouse	Same H'hold (not spouse)	Sep H'hold	Total	Spouse	Same H'hold (not spouse)	Sep H'hold	Total	
Loss of Social Opportunities	4	5	-	9	6	12	12	30	3
Fatigue/ Strain	14	-	-	14	10	6	8	24	3
Loss of working time	-	-	-	-	-	3	4	7	
Own health	9	1	-	10	5	-	3	8	1
Care routine	1	1	-	2	3	2	3	8	1
Housing Circumstances	3	-	-	3	2	-	-	2	
Distance	-	-	-	-	-	-	3	3	
Income	2	-	-	2	1	-	-	1	
Relation- ships	-	1	1	2	-	1	1	2	
Other	1	-	1	2	-	2	-	2	
Total	34	8	2	44	27	26	34	87	13

*   Some households report more than one main problem.

This categorisation is based on the answer to a final part of the questionnaire which asked the principal helpers what sort of problems or difficulties they faced and which of these was the biggest problem. The people who have been classified as "able to cope" are those who reported either no difficulty or expressed some degree of satisfaction with their caring role. The different costing bases are then applied to the sub-sample of people who were not coping on the grounds that it was these people who were providing more help than they would have wished.

The main purpose of this exercise is to examine how the different cost bases set out in the previous section affect the costs of care in the community and how those costs compare with the costs of alternative forms of care such as hospital or residential home care. It is not intended to look at matters such as the characteristic of people who cope versus those who do not or how costs vary by dependency of the person being cared for, since the sample is not suitable for these tasks. The data are being used illustratively rather than explanatorily.

2.   Comparison of different bases
        The main values used are

(a)   Working or non-working time lost as used in the appraisal
        of alternative modes of transport. The quantity of leisure
        and working time lost through providing care was estimated
        by each respondent.

(b)   The cost of appropriate statutory services to the value
        of all the help given where helpers and helped live in
        separate households and for help given with personal care
        routines where helper and helped are in the same household.
        This different approach is based on the premise that
        household duties such as shopping, cooking, cleaning and
        laundry would continue if the person being helped is
        transferred to another form of care.

(c)   An estimate of the type, quantity and cost of a level of
        service which would greatly reduce the strain on the carer.
        In some cases the carer was able to state exactly what
        was required. However, in many cases, it is assumed that 12

hours of home help could provide considerable relief of
stress especially where the carer would like two or three
half-days free to pursue social activities.

As stated in Section I these data were collected as part
of an economic appraisal of alternative patterns of care for the
elderly. The objective of the appraisal was to cost the care provide
to elderly people in different forms of care (e.g., hospital, resi-
dential care, own home) according to the level of disability. Disa-
bility was measured by use of the following (ordinal) Guttman Scale*.

1.   Unable to bath without help.
2.   Unable to walk outdoors without help.
3.   Unable to dress and undress without help.
4.   Cannot get in or out of bed without help.
5.   Cannot sit or stand without help.
6.   Unable to wash hands and face without help.
7.   Unable to feed (even if food is cut up) without help.

The disability suffered by some people does not fit the
scale because it does not follow the correct order set out above.
In these cases the people concerned have been marked as non-scale (N/S
but the figure in brackets is the number of disabilities out of the
above seven that they suffer.

The costs used in this appraisal are based on 1976-1977
fiscal year prices and the weekly costs of services received by each
person are set out in Tables 7-9. The values used for informal care
are as follows:

(a)   Value of time used in transport appraisals
          (i)   Working time lost - at carer's reported wage rate

          (ii)   Leisure time lost - 36p per hour as set out in the
                 report of the Leitch Committee (p.19) (1977)

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*   The methodology of the scaling is explained in Wright,
          Cairns and Snell, (1981).

(iii) <u>Travelling cost</u> - motor car rate at 8p per mile
(NHS car allowance rate)
- bus fares at cost reported by
interviewee

(b)   <u>Hours of care provided</u> £1.40 per hour (nursing auxiliary
wage rate) (£1.61 per hour for people living in London)

(c)   <u>Costs of statutory services</u> needed to relieve stress:

	Area		
Service	Yorkshire	Midlands	London
Home Help	£1.42 per hr	£1.24 per hr	£1.86 per hr
Nursing Auxiliary	£1.40 per hr + £0.34 per visit	£1.40 per hr £0.37 per visit	£1.61 per hr £0.45 per visit
Day Care	£6 per day	£6 per day	£6 per day

The tables show some interesting comparisons. Firstly,
the basis which forms the highest cost in most cases is the use of
the shadow price of the costs of a nursing auxiliary applied to the
hours of care provided by the principal helper. The exception to this
comes when people provide little direct care but lose a considerable
amount of leisure time through needing to be on hand or to provide
constant attendance if not actual care. Secondly, the service provision
to many households appears to be rather insensitive. In certain
cases some minor (low cost) provision such as the loan of a wheelchair
or minor housing adaptations or improvements would have made life
considerably easier for principal helpers. In other cases, principal
helpers themselves asked for quite modest increases in domestic or
nursing assistance.

Thirdly, even where provision is notionally granted on a
scale which is generous compared to the actual provision, the costs
of care rarely exceed the costs of residential care or even more rarely
exceed the costs of hospital care. The instances where the costs of
care at home are near to or exceed the costs of residential care (in-
corporating the highest cost basis for informal care) occur most
frequently where the carer is a spouse.

Table 7

Spouse as Principal Helper

CASE NO.	AREA	CARERS SEX	CARERS AGE	COST OF SERVICES £		GUTTMAN SCALE POINT	CARE PROVIDED HRS	CARE PROVIDED COSTS	LEISURE LOST (HOURS)	£	SERVICE PROVISION TO RELIEVE STRESS TYPE	COST QTY	£	MAJOR PROBLEMS OF CARING
1	Midlands	Male	76	15	X	4	26	36	46	17	Home Help	12hr	15	Fatigue and loneliness
2	Midlands	Male	67	49	XX	1	9	13	9	3	Nurse Aux	10hr	16	Dealing with personal care routine
3	Midlands	Female	70	9	X	1	4	6	70	25	Home help	12hr	15	Loss of social opportunities, own health
4	S. Yorkshire	Male	80	30	X	NS(2)	19	27	-		Wheelchair [Long term]		?	Poor housing circumstances
5	S. Yorkshire	Female	61	42	XX	8	20	28	84	30	Home help	12hr	17	Lifting patient, own health, lack of adequate domiciliary care
6	S. Yorkshire	Female	71	31	X	NS(2)	1	1	35	13	Home help	4hr	6	Fatigue
7	S. Yorkshire	Female	62	5	X	7	25	35	42	15	Home help	12hr	17	Lifting patient, loss of social opps lack of adequate domiciliary care
8	S. Yorkshire	Male	81	18	X	6	13	18	84	30	Home help	12hr	17	Constant need to be with patient, fatigue, lack of adequate dom.care
9	S. Yorkshire	Male	66	10		NS(2)	5	7	-	-	Home help	2hr	3	Need extra help with housework
10	S. Yorkshire	Female	66	4		1	0	0	-	-	Home help	4hr	6	Own health
11	S. Yorkshire	Female	79	7		4 unable to est.	-	-	-	-	Nursing Aux	4hr	7	Lifting the patient
12	S. Yorkshire	Female	69	14		5 unable to est.	-	-	-	-	Housing alterations		?	Access for wheelchair, provision of shower. Occ. Therapist's assessment
13	S. Yorkshire	Female	78	5	X	NS(5)	40	56	56	20	Incontinence laundry	2hr	2	Laundry
14	S. Yorkshire	Male	84	1		7	20	28	56	20	Nursing Aux	4hr	7	Lifting patient
15	S. Yorkshire	Male	78	28		NS(2)	-	-	-	-		-	-	Own health
16	S. Yorkshire	Male	?	-		4	7	10	56	20	Nursing Aux	4hr	7	Lifting the patient
17	S. Yorkshire	Male	?	11	X	6	26	36	70	25	Nursing Aux / Home help	4hr}/12hr	24	Lifting patient, fatigue, own health
18	S. Yorkshire	Male	80	9	X	4	19	27	42	15	Home help	8hr	12	Loss of social opportunities
19	S. Yorkshire	Male	82	23		2	2	3	-	-		-	-	Own health
20	S. Yorkshire	Male	?	11	X	NS(5)	37	52	-		Nursing Aux	4hr	7	Lifting patient
21	S. Yorkshire	Male	?	10	X	NS(4)	20	28	42	15	Nursing Aux) / Home help)	4hr)/8hr	19	Strain - been principal helper 20yrs 'I have had no retirement'
22	S. Yorkshire	Male	?	5		NS(1)	-	-	56	20	Home help	4hr	6	Own health, low income
23	S. Yorkshire	Male	?	8	X	NS(3)	25	25	70	25	Home help	12hr	17	Lifting the patient, own health
24	S. Yorkshire	Male	72	3		6	-	-	-	-		-	?	Housing problem - access for w/chair
25	S. Yorkshire	Female	65	15		NS(5)	C/S	-	-		Home help	8hr	11	Own health, inadequate dom. care

X = Costs near to cost of residential care if informal care costs are included.

XX = costs above cost of residential care but below hospital costs even if informal care costs are included.

XXX = costs are near to cost of hospital care if informal care costs are included.

Table 7 continued

CASE NO.	AREA	SEX	AGE	COST OF SERVICES	GUTMAN SCALE POINT	CARE PROVIDED HRS	CARE PROVIDED COSTS	LEISURE LOST (HOURS)	LEISURE LOST £	SERVICE PROVISION TO REVIEW STRESS TYPE	SERVICE PROVISION TO REVIEW STRESS TYPE	COST QTY	COST £	MAJOR PROBLEMS OF CARING
26	S. Yorkshire	Male	76	15 X	NS(4)	12	17	18	6	Home help	Home help	4hr	6	Heavy work
27	S. Yorkshire	Male	76	8	NS(5)	C/S	-	-	-	Home help	Home help	8hr	6	Lifting patient, fatigue
28	S. Yorkshire	Female	68	8 X	5	19	27	21	8	Night sister	Night sister	16hr	22	Sleep disturbance, fatigue, inadequate domiciliary care
29	S. Yorkshire	Male	86	29 X	6	11	15	-		Night sister	Night sister	16hr	22	Sleep disturbance
30	S. Yorkshire	Male	81	38 XX	5	12	17	42	15	Home help	Home help	12hr	17	Strain, own health and housing difficulty
31	S. Yorkshire	Female	77	5	NS(4)	7	10	56	20	Home help	Home help	12hr	17	Loss of leisure, housing circumstance
32	S. Yorkshire	Female	58	14	NS(6)	24	34	-				-	-	Low income
33	S. Yorkshire	Male	86	32 XX	5	11	15	49	18	Home help	Home help	12hr	17	Constant tie
34	Midlands	Female	67	6 X	NS(2)	11	15	70	25	Home help	Home help	12hr	17	Constant tie- P.H. fears to ask for help in case spouse admitted hospital. Disability of patient probably underestimated.
35	Midlands	Female	61	2 X	7	22	31	42	15	Night sister) Nursing Aux)	Night sister) Nursing Aux)	16hr 4hr	29	Sleep disturbance, lifting patient
36	London	Male	69	15	2	-	-	49	18	-				Coping with patient's depressed mood
37	London	Female	85	30 X	NS(3)	3	15	49	18	Night sister) Telephone)	Night sister) Telephone)	16hr	26	Sleep disturbance
38	London	Male	79	15 X	2	0	-	49	18	Telephone	Telephone	-	-	Insecurity
39	London	Male	69	4	3	0	-	49	18	Home help	Home help	12hr	22	Coping with dementia
40	London	Male	82	10	NS(3)	18	29	42	15	Home help	Home help	12hr	22	Own health, housing, access for wheelchair
41	London	Male	72	15	NS(1)	-	-	42	15	Home help	Home help	18hr	14	Loss of leisure
42	London	Male	76	8	5	8	13	72	26	Home help	Home help	12hr	22	Own health - waiting for wheelchair
43	London	Female	66	15 X	NS(4)	21	34	14	5	Home help	Home help	12hr	22	Own health
44	London	Male	73	6	NS(1)	-	-	-		-		-		Own health
45	London	Female	78	52 XX	NS(5)	26	42	21	8	Home help	Home help	12hr	22	Coping with incontinence; Isolation and loneliness
46	London	Female	70		1	-	-	7	3	-		-		Own health
47	London	Male	83	5	NS(2)	3	5	-		Nursing Aux	Nursing Aux	7hr	14	Coping with incontinence, low income
48	London	Female	71	5	NS(2)	4	6	28	10	Home help	Home help	8hr	15	loss leisure
49	London	Female	68	11	NS(6)	28	45	-		Nursing Aux	Nursing Aux	7hr	14	lifting patient
50	London	Male	67	33 XX	5	22	35	70	30	Home help	Home help	12hr	22	Exhaustion -"Life is one big problem"

X = Costs near to cost of residential care if informal care costs are included.

XX = costs above cost of residential care but below hospital costs even if informal care costs are included.

XXX = costs are near to cost of hospital care if informal care costs are included.

Table 8

Living in the Same Household, but not with Spouse

CASE NO	AREA	RELATION	Age	Weekly Cost of Service (£)	Guttman Scale	Care Provided Hrs	Care Provided Cost (£)	Leisure Lost	Leisure Cost (£)	Work Lost Hrs	Work Lost Wage	Service Provision to relieve Stress — Type	Qty	£	Major Problems of Caring
51	Midlands	Daughter	49	12	N/S (2)	13	18	84	30			Home help	12 hrs	15	Use of black mail (sell house), exhaustion, personal relationships
52	S. Yorks	Daughter	35	41 X	N/S (2)	7	10	-	-			-	-	-	Lack of privacy
53	S. Yorks	Daughter	40	-	1	-	-	35	13			Home help	8 hrs	11	Loss of leisure
												Nursing	7 hrs		
54	S. Yorks	Daughter	56	14 X	6	19	27	35	13			Home help	8 hrs	15	Loss of social life, dealing with incontinence
55	S.Yorks	Daughter	72	-	1	1	1	42	15			Home help	8 hrs	11	Loss of leisure
56	S. Yorks	Sister	76	4	N/S (4)	4	6	-	-			Home help	8 hrs	11	Loss of leisure
57	Midlands	Daughter	56	2	7	29	41	28	10		20	Home help	12 hrs	15	Personal relationship, loss of work and leisure opportunities
58	London	Daughter	48	6	1	-	-	42	15			Home help	12 hrs	22	Loss of leisure, personal relationship, sleep disturbance
												Nursing Aux	7 hrs	14	Mental and physical strain
59	London	Daughter	53	11	5	29	54	72	26			Home help	12 hrs	22	
60	London	Daughter	55	10	N/S (2)	21	39	42	15			-	-	-	O.P. will not take help from anyone else
61	London	Daughter	57	-	2	-	-	14	5		-	Nursing Aux	7 hrs	14	Dealing with incontinence
62	London	Daughter	49	51	5	9	17	28	10			Physio	3 hrs	7	Lack of help from remedial professions
												Nursing Aux	7 hrs	29	Emotional strain
63	London	Daughter	66	64 XXX	6	15	28	56	20			Home help	8 hrs	29	Loss of leisure, loneliness, fatigue, lifting patient
64	London	Daughter	62	2	3	13	24	42	15			Home help	8 hrs	15	Loss of social life
65	London	Daughter	70	3	N/S (3)	22	41	56	20			Home help	8 hrs	15	Loss of leisure
66	London	Friend	53	53 XX	5	13	24	35	13			Home help	8 hrs	15	Loss of social opportunities
67	London	Daughter	50	23 X	N/S (4)	2	4	28	10			Home help	12 hrs	22	Fatigue, loss of social opportunities
68	London	Son	38	24	3	1	2	28	10			Home help	8 hrs	15	Personal relationships
69	London	Son	46	54 XX	N/S (4)	3	6	21	8			Home help	8 hrs	15	Loss of leisure
70	London	Son	50	17	N/S (2)	9	17	14	5			Home help	8 hrs	15	Loss of social opportunities
71	London	Lodger	-	13	4	17	32	-	-			Nursing Aux	7 hrs	14	Aspects of personal care
72	London	Son	68	12	1	-	-	42	15			Home help	8 hrs	15	Loss of leisure
73	S. Yorks	Son	56	8	3	18	25	14	5			Home help	8 hrs	11	Loss of social life
74	S. Yorks	Son	46	8	0	-	-	42	15			Home help	8 hrs	11	Own health

X = Costs near to costs of residential care if informal care costs are included

Table 9

Separate Households

Case No.	Area	Relationship	Age	Weekly cost of services (£)	Outcome Scale	No	Cost	Distance travelled (miles)	Mode of travel	Loss of leisure hrs	Loss of leisure £	Loss of work hr	Loss of work £	Input Subs. hrs	Input Subs. £	Cost	Weekly services Relieve Type	Provision Stress Qty	Provision Stress Cost	Major Problem
75	Midlands	Son	43	12	2	6	2	5	Car	21	0	-	-	2	-	3	-	-	-	Personal relationships, maintenance of coal fire
76	Midlands	Daughter	67	7	2	6	-	61	Foot	56	20	-	-	16	-	22	Home help	12hr	15	Loss of social opportunities
77	Midlands	Daughter	54	14	1	2	3	12	Bus	-	-	-	-	5	-	7	Telephone	2hr	6	Distance to travel
78	S. Yorks	Sister	65	11	1	7	-	61	Foot	28	10	-	-	4	-	6	Day care allow	2hr	16	Strain, caring for 2 households
79	S. Yorks	Niece	57	7	N/S (1)	3	-	1	Foot	-	-	-	-	7	-	10	Home help	8 hr	11	Own health
80	S. Yorks	Daughter	53	32 X	3	6	-	1	Foot	2	1	N/S	16	3	-	4	Home help	8 hr	-	Restricted work opportunities
81	S. Yorks	Daughter	56	4	0	5	-	61	Foot	30	11	-	-	14	-	20	Home help	4 hr	6	Own health
82	S. Yorks	Daughter	44	6	1	7	-	1	Foot	42	15	-	-	12	-	17	Home help	12 hr	17	Coping with two households
83	S. Yorks	Daughter	45	6	3	7	-	61	Foot	84	30	-	-	25	-	35	Home help	12 hr	17	O.P. awaiting admission to EH
84	S. Yorks	Daughter	2	4	1	7	-	61	Foot	21	8	-	-	6	-	8	Home help	4 hr	6	Loss of leisure
85	Midlands	Daughter	52	7	2	7	-	61	Foot	14	5	20	28	23	-	32	Nursing Aux	7 hr	12	Loss of social and work opportunities
86	Midlands	Son	46	20	2	2	-	3	Bicycle	14	5	-	-	8	-	11	Home help	4 hr	5	Personal relationships, distance, loss of leisure
87	Midlands	Son	51	9	N/S (1)	7	-	61	Foot	21	8	21	29	7	-	10	Home help	8 hr	10	Loss of leisure
88	Midlands	Daughter	57	5	N/S (1)	7	-	61	Foot	28	10	30	42	9	-	13	Home help	12 hr	15	Loss of social and work opportunities
89	Midlands	Daughter	48	11	0	7	3	2	Bus	28	10	-	-	16	-	22	Home help	12 hr	15	Fatigue
90	S. Yorks	Daughter	57	15	3	7	-	-	Foot	28	10	-	-	14	-	20	Nursing Aux Home help	7 hr 8 hr	22	Lifting patient, bathing patient, loss of leisure
91	S. Yorks	Daughter	46	25 X	N/S (2)	7	-	-	Foot	49	18	-	-	14	-	20	Nursing Aux	7 hr	12	Lifting patient
92	S. Yorks	Daughter	44	10	4	7	-	-	Foot	42	15	20	20	28 36	28	50	Nursing Aux Home help	7 hr 8 hr	22	Strain, dealing with incontinence, loss of work opportunities
93	London	Sister	78	10 X	4	7	-	1	Foot	14	5	-	-	28	-	45	Home help	12 hr	22	Own health
94	London	Son	54	26 X	3	7	-	61	Foot	14	5	-	-	14	-	23	? Telephone	-	-	Anxiety over leaving O.P. alone
95	London	Daughter	32	17 X	3	7	-	61	Foot	35	13	-	-	28	-	45	Home help or Day Centre	12 hr 2 days	22 16	Fatigue, caring for 2 households
96	London	Daughter	66	9	N/S (4)	7	-	61	Foot	42	15	-	-	-	-	-	Home help	8 hr	18	
97	London	Cousin (Female)	66	9	N/S (2)	3	3	10	Bus	18	6	-	-	6	-	10	Home help	4 hr	7	Coping with depression in O.P.
98	London	Daughter	42	29 X	1	2	1	9	Car	-	-	N/S	60	15	-	24	Home help	4 hr	7	Distance
99	London	Sister	67	25 X	2	7	-	61	Foot	84	30	-	-	38	-	61	Day Care	2 hr	16	Loss of leisure
100	London	Daughter	52	13	1	3	2	4	Bus	-	-	N/S	16	7	16	11	Home help	8 hr	15	Loss of work

X = Costs near to residential care costs if costs of informal care are included

4 cases are missing from the set of helpers who were having problems because responses from patients were not usable.

In the 50 households where the spouse is the principal helper experiencing problems, 27 (54%) have costs of care exceeding the cost of residential care when the highest cost basis is used. The costs of caring for 14 of these 27 would have exceeded the costs of residential care if the services were provided at a level which would have greatly reduced the strain on the caring spouse. In any event the existing service provision for 7 of these 14 was already at or above the cost of residential care. However, the 27 people receiving care had an average of 4 disabilities on the Guttman Scale set out previously and probably hospital care would be a better comparison than residential care. In no instance was the cost of hospital care exceeded.

V. Implications of the analysis for economic appraisals of alternati forms of care for the elderly

It is not the purpose of this paper to decide which basis of valuation is correct, but the previous section has made some important points:

1.   For some principal helpers, all the caring they undertake is a pleasure and is an acceptable use of their leisure time. For most principal helpers caring is a pleasure for some of the time, but prolonged loss of leisure and working opportunities are easily identified by the helpers themselves. In effect, these different attitudes have to be elicited by social survey methods and it is therefore impossible to capture these different attitudes by the use of one valuation (including zero).

2.   Different types of household are likely to generate different problems and warrant different methods of costing. The main type of household which are worth identifying are

        (a)   Two person households (principal helper is a spouse)
        (b)   Helper in the same household (not spouse)
        (c)   Helper in separate household (relative)
        (d)   Helper in separate household (friend or neighbour).

Where helpers and helped share the same dwellinghouse the costs have to be applied solely to the hours of personal care because household routines would continue to need doing even if the patient was transferred to another fomr of care.

3.   The different costing bases represent different perspec-
tives of carers and other members of the community. The valuation
of time as developed in transport appraisals is probably closest
of the methods discussed to the helpers' valuation of their own time.
In the survey reported in this paper helpers had little difficulty
in estimating the hours of working and non-working time they would
have free if their charge were admitted to a different form of care

4.   The application of a shadow price such as the wage of a
nursing auxiliary to all the hours of care devoted to the patient
represents in one sense the "saving" in public expenditure that the
carers are allowing society to make. On the other hand, some schools
of thought would argue that caring for a close relative is a familial
duty and that the formal services are provided as a "top-up" to the
informal care. One attempted compromise to these different arguments
is to identify that package of formal services which tops-up the
informal care to the extent that the carer is always able to tolerate
the work involved in caring.

5.   The evidence from this rather limited study is that carers
can often be kept happy in their work for quite small amounts of
weekly expenditure. In fact, if the formal caring system were more
attuned to identifying the strains placed on carers or were able to
make the nature and scope of its services more widely known and more
easily accessible and, of course, had the resources available to
satisfy the resulting demands then the net advantage of the time
spent caring for many carers would be greater than the net advantage
of other uses of time.

          However, some studies suggest that increased service provision
does not discourage some groups of carers (e.g. not closely related
to or not living in the same household as the patient, younger people,
employed people) from preferring the admission of the patient to long-
term institutional care.

6.   The optimum mix of informal and formal help is a major
information gap in the economic appraisal of alternative forms of care
for the elderly. There is considerable evidence both in this paper
and elsewhere (Parker, 1984) that people are not making informed choices

about this mix. The different factors involved (patients, carers, professional staff) have their own perceptions of the relative costs and benefits of alternative methods of providing care. For example, professionals may use the time of informal carers as a free good, whereas carers may regard the cost of statutory services as a free good (except for any access costs). There is, therefore, a major role for economists to measure the social costs and benefits of these alternatives and to devise methods (e.g. providing budgets to carers and/or professionals and charging for all services "bought in") that ensure that the most efficient alternatives are chosen.

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