THE VALUATION OF TIME IN HEALTH CARE STUDIES

In two of the problems with which the Medical Care Research Unit in Newcastle is involved the question of the valuation of time plays an important part. The first of these concerns the location of outpatient clinics in a rural area. The second relates to the characteristics of two methods of treating surgical conditions.

In the outpatient study there exists a situation in which the vast majority of outpatient clinics take place at the District General Hospital. Patients living in the H.M.C. area are involved in journeys which can in some cases be over forty miles. There are a number of small hospitals and health centres scattered about the area which would be suitable for holding some consultations locally. Certain clinics, including orthopaedics, gynaecology and psychiatry, hold some of their clinics locally. The problem is one of estimating the benefits and costs of changes in the location of particular clinics. Some of the effects of alternative configurations of clinics will take the form of changes in the length of time during which the patient is away from his or her chosen activity. Doctors will substitute travel time for "work" or "leisure" time or vice versa. Finally, since much of the ambulance service is run by volunteers, the amount of volunteer time required by the ambulance service may vary.

Inthe case of a comparison between a short-stay and a longer-stay regime for certain non-urgent surgical conditions, there is involved the question of time spent in hospital versus time spent at home, and the question of the speed of "return to work" after a particular type of operation. The variation between time spent in hospital and at home could be regarded as analogous to the second type of time-saving specified by Harrison and Quarmby in their review of time savings valuation in transportation projects, i.e. "a change in the composition of overall journey time may be accounted valuable even where total journey time remains unaltered."

It has been customary in studies of the value of travel time to divide time savings into those occurring during working hours and those occurring during leisure time. Time saving during working time is generally valued by reference to the marginal productivity theory. The gross wage rate serves as a measure of the marginal product attributable to time saved or lost. To value leisure time, evidence is used from situations where travellers can purchase time savings.

In the travel time case, in order to equate the gross wage rate measure with a utility measure, it must be asssumed that the utility of the work situation per se, and of the travel process, are not significantly different. For working patients attending outpatient clinics, this is the assumption that I intend to make also. It may be true that some part of the total door-to-door episode in the case of an outpatient episode is preferred to the work situation, but one suspects that inducing patients to reveal such a preference may not be worth the effort.

Analagously to the travel problem, one must pose the question of whether a large number of small reductions in random absences from work can be related to marginal product estimates, whether in fact some sort of "threshold" effect does not operate on the production as well as the consumption side. This concerns me somewhat, and the argument related to the even distribution of infra-marginal effects only gives me a somewhat uneasy comfort. But in the absence of any reasonably simple way of resolving this problem, a wage figure still seems the best estimate.

In the case of those patients not in gainful employment, the problem of housewives' services is well known. The difficulties of valuing the time of children and students, the retired, and those whose condition prevents them working are even greater however. I have very little sympathy with the point of view which confines itself to the measurement of "economic" effects, meaning those effects which are actually or even potentially marketable, but it does at least have the virtue of simplicity.

I have not come to any definite conclusions about the value to be attached to the time of these groups, apart from the conviction that some time should be attached to it. In the case of children undergoing compulsory education, it does not seem likely that "revealed preferences" can offer much joy, but for some of the others, such as the retired, it may be that the kind of estimates used to value leisure time in transportation studies would be an acceptable surrogate. Given the generally low incomes of these groups and, in some cases, their abundant endowment of "leisure" time, values used would probably be quite low.

The valuation of consultants' time does not in principle present problems different from those discussed in John Rickard's paper last October. I do not know of any time and motion studies relating to consultants. Rosamond Gruer, in her study, assumed an eleven-session week (three hours per session), calculated travelling time as a percentage of this, and took this percentage of an average consultant's salary. This is probably fair enough. It assumes that any extra travelling is done on the firm's time, which is probably politically necessary, even if untrue. It must be confessed that the relationship between salary and marginal produce for small changes in consultant activity stretches one's faith in the marginal productivity theory, especially when the 24-hour responsibility aspect of the consultant position is taken into account, but some figure such as the notional half-day payment for a locum tenens appointment, is probably the most acceptable.

It was pointed out at one of our sessions last year that voluntary service may have an opportunity cost, and thus could not always be treated as a free good. In cases where no alternative use exists for the voluntary service, or where it would be less forthcoming for alternative uses, then it may be that a reduction in the use of these volunteers could be regarded as a cost, that is the volunteers actually feel worse off for not being able to carry on their voluntary service.

On the other hand, it could be that satisfaction is derived, not from the level of voluntary activity, but from the option to take part in it. In cases where an alternative use for the voluntary services exists, there remains the question of how these alternative activities should be valued. To value them at the cost of providing them in the absence of voluntary service begs the question of whether they would have been provided in this case.

The valuation of time spent in hospital compared with time spent at home during a post-operative period created certain problems. To obtain an answer based on "willingness to pay" we included in our pilot questionnaire a special question for those families in which the patient was discharged on the day of the operation. This asked how much the family would have been willing to pay for private nursing home accommodation for a few days after the operation. The answers told us very little about preferences between home and hospital, and a great deal about North-East attitudes to private medical care. At the request of the interviewer the question was dropped! We are therefore having to depend on measures of expenditures or loss of earnings incurred by the family and expressions of preference by the patients. I understand that the Exeter people have had rather more success in this type of enquiry. I feel that this type of "willingness to pay" indication by the patient is an important measure, but am a little unsure about its relationship to the "equality of consumption" ethos of the N.H.S.

Finally, there is the question of valuing speed of "return to work". The factors governing the speed of an individual's return to work are many and complex, but the randomised nature of the allocation procedure in the study may be expected to isolate the factor of the different clinical regimes. Once again, the customary procedure is to express this benefit in terms of earnings accruing during that period between return to work under one regime and return to work under another.

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If one assumes that the period until the patients recover full activity can be ignored, the problem is one of valuing that extra period of full activity attributable to the particular post-operative procedure.

The value of the working time will differ from the earnings figure by a sum representing the utility or disutility of work. In other words, the value of the working time is equivalent to the sum the worker would need to be paid to induce him not to work. If one assumed that any disutility of work (including any aspects of "productive consumption" in Becker's terminology) were exactly offset by the utility attributable to the non-working time, then earnings would be an accurate measure of the value of this period of time.

A final worry is about the value of time in a population with a secularly high unemployment rate. It seems to me that in the evaluation of health projects involving benefits to such a population, it is idle to attribute earnings to a proportion of the population who are not in fact earning. In such a situation one must presumably attribute benefits at the lower rate applicable, for example, to the retired.

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