OPTION APPRAISAL IN THE SCOTTISH HEALTH SERVICE*

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> "This does not imply a radical change in the more traditional methods of control. The main use of financial appraisal is still to stimulate the judgement of those who initiated the project in the first place".(1)

> "...this is not a new idea. It is being used I suppose to describe the more rigorous and more developed methodology used in the application of an old idea which is that before one embarks on an expensive major capital project one should look at both capital and running costs of it and alternative ways of providing the service. We would say that in our major programme which began in the '60s we always endeavoured to do that; though perhaps with less rigour than we might have done".(2)

Introduction

The purpose behind 'option appraisal' is to make the best use of resources at the government's disposal from the point of view of all parties and not simply from that of the government department with funds to spend. Proposals may previously have been appraised one way or another. The distinctive feature of 'option' appraisal is to introduce the economic element in a "more rigorous" way. Such evidence as we have suggests that the few occasions when option appraisal has been applied have been to prospective capital schemes. Whilst this is where choices are often most visible, in fact the principles are as applicable to assets already in public ownership as to those to be acquired(3), and to programmes involving recurrent expenditure (i.e. revenue allocations) as to those involving the

capital budget.

Option appraisal within the Scottish Health Service has the appearance of the 'flavour of the month'. Yet as the first quote shows, within the public sector as a whole, the principles implied by option appraisal can scarcely be regarded as novel; indeed they have been applied to the nationalised industries since 1962.[4] However, the general acceptance of these principles within the NHS has been a long time coming, although there are a few notable exceptions about which more will be said later. Certainly that acceptance was long after 1969 when all investment in the public sector was to have been covered.[4] The long delay is explicable in terms of the past tendency to appraise only major capital proposals in a formal manner and, in the case of the NHS, this has usually meant in effect appraising hospitals. Hospitals, according to a senior civil servant with experience of both, have a complexity comparable to aircraft carriers.[5] The long delay before the economic element in option appraisal was given formal expression may, therefore, seem excusable. The same excuse would not, of course, apply to the more 'straightforward' investment decisions.

Times have changed, and minor as well as major capital expenditures are expected to be appraised in terms of the Treasury's current guidelines.[6] The Scottish Health Service – the fifteen health boards and the Common Services Agency – are to be given notice by the SHHD that *all* capital expenditures must be appraised this way, the the SHHD is preparing a manual to assist them to do so in the appropriate manner. The Treasury's approval is required for the more expensive hospital projects funded by the SHHD, whether from its own National Capital Programme or from the ordinary capital allocation the SHHD distributes to the health boards. In January 1983 hospitals costing £2 million or more would have required the Treasury's approval in principle.[7] The SHHD is responsible for the appraisal of the others and, in turn, delegates some of that responsibility to the health boards.

In early 1984 the health boards were responsible for capital schemes funded from their Ordinary Capital allocation if they cost (a) £1 million or less in total if no net increase in clinical resources were involved, (b) £500,000 or less in total if a net increase in clinical resources were involved, (c) £150,000 or less in respect of building costs alone, and (d) £100,000 or less for schemes which had a predominantly engineering context. Schemes not covered by (a) to (d) would invariably have required the approval of the Building Division of the Common Services Agency. Schemes not covered by (a) and (b) would have required the approval of the SHHD as well. The limits are shortly to be raised again. No such approval has been required on

complex medical equipment, however expensive; although the SHHD has had to be notified of the intention to purchase equipment costing more than £100,000 and orders must be made through the Supplies Division of the Common Services Agency.[8] In recent years the SHHD has retained about half its capital allocation and has been responsible for appraising its use. The Building Division also used to have a responsibility for monitoring the health boards' maintenance programmes, but this was formally transferred back to them in 1979.[9]

At the time of writing 'option appraisals' have been carried out on three major capital proposals. In two cases – the provision of facilities for acute services for Fife Health Board and of facilities for the mentally handicapped for Dumfries and Galloway Health Board – economic advice came from the Health Economics Research Unit (HERU) at the University of Aberdeen. In the case of the third – the provision of facilities for the elderly for Lanarkshire Health Board – assistance came from Strathclyde Business School at the University of Strathclyde. It is my general impression that those within the Scottish Health Service still feel they have not acquired sufficient expertise to incorporate the economic element in appraisals without such external assistance as HERU has offered; though this lack of confidence may be dispelled once the SHHD manual for appraising proposals has been published and its contents are fully appreciated.

Option appraisal has generated a lot of interest and activity in the Scottish Health Service, yet the two statements at the head of this paper suggest its impact on the decision reached is likely to be marginal. The two statements deserve to be considered, if only because of their authoritative sources and their common view from different perspectives of public service. C.D. Foster, author of the first statement, writes as a professional economist after several years' experience of applying appraisal at the Ministry of Transport (under the sympathetic leadership of Barbara Castle). The author of the second source is A.L. Rennie, who at the time was Secretary to the SHHD, and replying, under examination, to the Committee of Public Accounts to the prospect of implementing option appraisal.

On the face of it their remarks are surprising, especially the one coming from the SHHD which referred to practice in the 1960s and not to 1981 when it was made. The Treasury admits that "...much of the work of a typical appraisal can be carried out competently by officials of *any* discipline...".[10] But the Treasury adds that they need "proper training", and that "specialists" are also needed. Two specialist groups specifically

identified are economists and accountants.[11] However, until recently, the Scottish Health Service has been short of them both.

No economists have been employed in the SHHD or the Common Services Agency in their capacity as economists. Nor has been SHHD or the Scottish Health Service made much if any use of economists employed elsewhere in the Scottish Office. However, since 1977 the SHHD has funded HERU 'inter alia' to provide economic advice to itself and the Scottish Health Service.[12] Since 1979 HERU has also run nine month correspondence courses in Health Economics; and altogether a hundred staff employed by the Scottish Health Service have completed it[13], and would have learnt something about option appraisal as a result. Whether they acquired the "proper training" the Treasury argues is necessary is another matter. Certainly health board officials seem highly nervous at the prospect of option appraisal, and to be leaning unduly on external sources. Finally, in April 1984 HERU set up a consultancy service to facilitate the commissioning of major studies requiring its assistance.[14]

Management accountants have been employed throughout the Scottish Health Service since its reorganisation in 1974. But in a couple of respects their training falls short of the Treasury's guidelines. Without "proper training" they would tend to ignore the impact of proposals outside the Scottish Health Service. In addition, they tend to think of valuing costs and benefits in accounting terms and not as economists. The Treasury's guidelines clearly demand the latter.[15]

If the advice of professional economists and (management) accountants had not been available in the 1960s, how can the Secretary's statement be justified? It is our answer to this historical question which provides the basis for assessing what impact 'option appraisal' may be expected to have. Several sources were used. Officials from the SHHD and Scottish Office, including Mr A.L. Rennie himself, the Building Division and a health board, and members of HERU have been interviewed. Use has also been made of the SHHD circulars and its various publications although, of course, there is no guarantee that the statements of intention contained in them have been carried out. One set of sources not used, but available for example to the Controller and Auditor General, is the SHHD's and health boards' documentation of appraisals. However this last set of sources is recognised to be an unreliable indication of how thoroughly proposals were appraised as the appraisals were rarely fully documented. These sources are used to assess how fully each of the Treasury's guidelines had been implemented.

The Treasury's Guidelines

In the course of time the Treasury has added to its list of guidelines to be included in the appraisal of projects. The list started with discounting (Treasury, 1973), and the latest pamphlet identified another five. A list of the six is given below in the order of their application in an appraisal. In 1982 the DHSS produced a pamphlet of its own to translate the Treasury's guidelines into terms more familiar to NHS officers.[16] Some regional health authorities have produced pamphlets of their own, and the SHHD has one scheduled to appear later this year (1984).

The list of guidelines

1. The selection of options.
2. The identification of *all* costs and benefits.
3. The quantification of costs and benefits where possible.
4. Discounting, using the Treasury's test discount rate.
5. The adjustment for risk and uncertainty.
6. Backchecks and monitoring.

As was mentioned above, these guidelines are to be applied to *all* capital projects, whether or not their eventual approval in principle must be obtained from the Treasury or the SHHD. There are, however, two major exceptions. First, the DHSS made it clear to the Public Accounts Committee that it did not expect *clinical activities* to be subject to 'cost-benefit analysis'.[17] Cost-benefit analysis is a highly specific form of appraisal[18], one which assumes that the costs *and* benefits of proposals can be valued in financial terms. This may be a reasonable requirement for commercial proposals, but is hardly to be accepted readily for proposals which involve saving, say, lives.

Other forms of appraisal, such as cost-effectiveness analysis, are possible which would satisfy the Treasury[18] but can there be many clinical activities which offer more than one option to achieve the *same* outcome and so *avoid* the problem of measuring their respective benefits? For example, the treatment of chronic renal failure by dialysis or transplant in both cases raises life expectation, but of a very different quality. So much has been recognised in cost-effective analyses of this treatment.[19] Fortunately, in this choice the less costly method, where a choice is medically justified, also offers the better quality of life. But one cannot predict so convenient an outcome and, if the chronic renal failure example is indeed the exception, then the exemption of clinical activities from cost-benefit analysis is likely to exempt the majority from *any* serious sort of

economic appraisal. It is noteworthy that the DHSS has appraised a limited number of clinical activities, but their economic content is regarded as "one factor taken into account by DHSS working groups considering whether such services should be introduced nationwide".[20] In addition, economic appraisal seems to be gathering some support from the medical profession itself.[21]

The second major exemption is *strategic decisions*.[22] Quite what is meant by the term 'strategic' has never been precisely defined, but the following example may help illustrate its meaning within the Civil Service. The decision to build a hospital is a strategic decision; the decision on its siting is not, and would be considered suitable for option appraisal. It would seem that (national) priorities, such as those contained within the SHAPE Report for the Scottish Health Service[23] are another example of a strategic decision. Certainly they are not based on a full economic appraisal.[24] As the authors of the report admit, they adopted "...a pragmatic approach, in which value judgements would necessarily play a *particularly large* role...".[25] Priorities defined this way are liable for, and arguably deserve the same criticism as was directed at the members of the Royal Commission on the Third London Airport. They recommended one among several possible sites, but did not consider whether a third one was needed in the first place.

Three of the six guidelines – the first, fifth and sixth – are ones which any government department or independent authority might be expected to adopt. The external pressure of the Treasury would hardly seem necessary, since their adoption would assist the departments in securing such goals as they may have. For the remainder of this section we indicate the role of these three and the extent they have been taken up. Only then do we turn to the three remaining guidelines – the second, third and fourth.

The Selection of Options

The obvious reason for selecting several options is the fact that the one first thought of might not be the one eventually preferred. It is clearly this guideline that the Secretary to the SHHD had in mind when referring to past appraisals of major capital proposals. But, as we hope to show, the value of comparing different options depends on whether the other guidelines in the list are also included. If they all are, then it would by no means be obvious which one would eventually be preferred until the appraisal were well in hand if not completed. Unfortunately, the Secretary did not indicate in 1981 which, if any, of the other guidelines were regularly included in the appraisals.

This is not the place for a full analysis of the options open to those running the health service. But a number of observations can be made which point to the need for certain improvements. The first observation is that *many* options do not necessarily involve clinical activities, although academic 'health' economists have tended to focus on this exempt group. Thus Williams[26] refers to choices in the *type* of treatment for a given disease (kidney dialysis or transplant), to choices in the *place* of treatment (as an in- or out-patient for the removal of varicose veins), and to the choices in the *time* of treatment (mass miniature radiography for the early diagnosis of pulmonary tuberculosis). Drummond[27] summarises over one hundred such studies which have been published. Many more are now available. The field of non-clinical activities has been largely unexplored by this group of economists although this omission is not likely to last long now that option appraisal requires formal adoption.

Second, the choice of option is directly related to the *objective* of the proposal. Ideally that objective should be expressed in terms of the outcome of the proposal, say, of lives saved, care of the elderly, and so on. Until recently the Scottish Health Service's objectives were only in terms of the provision of facilities, say, of the number of beds by type per capita. In the end the options have to be expressed this way, but an examination of the quantitative guidelines used by the Scottish Health Service suggests no full formal analysis of both the costs and benefits of providing the facilities.[28] Norms expressed in terms of throughput, say of admissions per capita, are hardly more appropriate. Recently, however, there has been a move in the right direction in that objectives are also being defined in terms of programmes which usually refer to specific client groups such as the elderly.[29] This comes closer to the final output of health services although, in doing so, one also comes closer to evaluating clinical activities which have been declared exempt from cost-benefit analysis. However, if this sleight-of-hand is allowed to pass then sets of facilities can be selected, each of which best meets the objective of its respective programme given that programme's budget allocation. It is this approach which was adopted in appraising the proposal by the Dumfries and Galloway Health Board to make local provision for the mentally handicapped.

Third, it is too rarely recognised that the scale of provision, whether it be of facilities or the programme's budget, can be varied. The DHSS manual, for example, makes no explicit reference to this possibility.[30] Yet if the scale of provision is not considered among the options, then the Scottish Health Service may find itself making recommendations not very different from one made by the American Cancer Society that more than

$47 million be spent to identify a person with cancer of the colon.[31]

The Secretary to the SHHD recently elaborated the extent to which options were considered when the Hospital Plan for Scotland, first published in 1962, was developed and implemented. In the first place, the regional hospital boards were asked to make a set of proposals which would take into account what catchment population the hospital would serve and the related problem of where it be sited. In addition, they were asked to consider whether functions, like maternity care, should be located at a single hospital or provided separately. More recently, decisions whether to build the hospital in phases or all at once have had to be evaluated. The quality of the evaluation no doubt was variable, but the intention was clear: to aim at functional efficiency which, in the context of acute facilities, meant sufficiently large developments to offer specialist services on a 24 hours a day basis.

At the same time the SHHD, as the Department of Health for Scotland became, itself made several appraisals whose eventual purpose was a set of design guides for hospital departments and health centres. The hospital departments covered were wards[32], accident and emergency departments[33], and outpatient departments.[34] In each case the aim was functional efficiency, by which is meant the initial definition of the functions of the department in question and a design solution which was thought would perform them most efficiently in terms of the resources available. The SHHD also has had access to a series of similar studies produced by the DHSS. The SHHD and DHSS virtually ceased publishing their series of design guides and hospital planning notes on reorganisation in 1974. Those that had been published, however, have had an important place in the subsequent design of hospitals and health centres.

The next stage is construction. The responsibility for this, in the case of hospitals, lay with the regional hospital boards, until reorganisation. Then responsibility was shifted to the newly created Building Division of the Common Services Agency, which took over many of the staff originally employed by the boards. Again after reorganisation, and probably to some extent before it, each proposal was appraised with an economic element in mind. Two particular sets of choices had an explicit economic content: the choice of fuel, introduced in 1965[35] and more recently the choice between building new and upgrading existing buildings.[36] Many other options would have been considered, several with an implicit economic content such as the choice of orientation and shape of a building, and options in the building elements such as the choice between flat and pitched roofs.[37]

Risk and Uncertainty

We turn now to the second guideline the SHHD might be expected to implement without pressure from the Treasury to do so. Risk and uncertainty are inherent in most proposals. They are least important for proposals to replace existing facilities. They become more important when the provision of existing facilities is extended. They become most important when an entirely new programme is proposed. In the last case there may be little idea of its take-up by patients or of its benefit to them. But in all cases, even when existing facilities are replaced, risk and uncertainty cannot be avoided where the outcome of the proposal extends into the future. Thus the quite straightforward decision to replace a boiler involves the choice of fuels, whose relative cost could change.

The Treasury suggests the use of sensitivity analysis as the means to cope with risk and uncertainty. It does not avoid the problem they cause, but it does indicate the extent to which the preferred option depends on the assumptions made. Ideally the selected option should be clearly preferred for all reasonable assumptions. If it is not, then judgement is required even in those cases where economic criteria alone would dictate the selection of options.

We have only limited information on the extent to which risk and uncertainty were taken into account. It is our impression that at the earliest stages in the proposal, the regional hospital boards and their successors the health boards took little or no account of it. The next stage is the design guides and hospital planning notes produced by the SHHD and the Scottish Hospital Centre. An examination of them gives no suggestion that risk and uncertainty were taken into account either. Certainly none have been taken for the last stage of construction.[38]

Backchecks and Monitoring

The purpose behind this guideline is to learn from past mistakes. A systematic approach to this guideline requires an explicit statement of the objectives of the proposal and the assumptions behind the option eventually selected.

There is evidence of some willingness to put this guideline into practice. The first stage involves a set of proposals made by the regional hospital boards and then by the health boards which have the SHHD's approval. The outcome – the Hospital (subsequently the Health) Plan for Scotland – has been publicly revised several times. Thus the original Plan

for Scotland[39] published in 1962 had 'revisions' and 'reviews' to it published two and four years afterwards, respectively.[40] Revisions, usually accompanied by additions to the existing scheme, have been periodically announced.[41] The latest revision, unlike its predecessors focuses on the bed requirements of individual health boards, and does not go so far as recommending particular schemes whose approval now depends on 'option appraisal'.[42] Even this latest effort recognises its own estimates will need periodic revision.

There is also evidence of revisions by the SHHD and one of its agencies, the Scottish Hospital Centre, to their published hospital planning notes and design guides. We have identified six 'design in use' studies which have been published. Three were reviews of the operation of the hospital as a whole,[43] two reviewed ward designs,[44] and one reviewed the design of health centres.[45] Shortcomings of existing designs were identified and corrections to them were made. However this work of 'backchecks and monitoring' lapsed when it was delegated to the Building Division due to a lack of resources to do it and of first hand information on maintenance costs to test the assumptions.[46] The regional hospital and health boards have also had a similar responsibility,[47] but it would appear not to have been carried out regularly if at all.

Conclusions

Three of the six guidelines indicated by the Treasury for inclusion in an *economic* appraisal of proposals might reasonably be expected to be adopted by the SHHD and the Scottish Health Service. Our analysis indicates they have a useful role, though it should be made clear that in the cases of these three there is nothing specifically 'economic' about them. *Any* appraisal might include all three. To make the appraisal economic and satisfy the Treasury's goal of an efficient allocation for the benefit of *all* parties it is necessary to include the three other guidelines as well. Their role will be evident in due course.

There is mixed evidence for their adoption. There is no evidence of a systematic approach to risk and uncertainty. In the early days of the 1960s, when the major capital programme took off, there was a willingness to consider a variety of options in a systematic way and to check the practical value of proposed design solutions. However this work was largely at the initiative of the SHHD. It is not clear that the SHHD carried the regional hospital boards with them; and on reorganisation this enthusiasm seems to have evaporated. The same choices continue to be appraised, and there is little evidence of a willingness to expand the list. One might therefore hope

the Treasury's initiative will have an impact on the implementation of all three self-serving guidelines.

The Identification of all Costs and Benefits

The Treasury is quite clear that the appraisal of proposals should include *all* important costs and benefits, those falling on the private as well as the public sector, and not just on the organisation responsible for them.[48] In this way an efficient allocation of resources from the point of view of *all* begins to be possible.

It is hardly to be expected that, without prompting, the SHHD and the Scottish Health Service would use this information in a way completely contrary to their own interests. Nevertheless, the obvious willingness to consider several sites for buildings suggests their receptivity to the interests of others. Just how far the SHHD and Scottish Health Service are willing to go in this direction partly depends on there being channels for the interests of others to be expressed and whether trading is possible. This section concentrates upon these possibilities.

First it should be recognised that the structure of the SHHD and Scottish Health Service guarantees points of contact between them and other interest groups. In the end, the SHHD and the Scottish Health Service are accountable to the Secretary of State for Scotland and through him to Parliament, where the interests of other groups can also be represented.

Second, since reorganisation of the NHS the Secretary of State has been advised by the Scottish Health Service Council, whose membership is drawn from all the major professional groups and from each health board and university with a medical school as well as from the SHHD.[49] The Council, for example, was consulted on the original statement of national priorities,[50] and was responsible for drafting the (revised) SHAPE Report published four years later.[51]

Third, there has been a continuing practice of involving several bodies with an interest in the NHS in its running. Before reorganisation the local authorities ran the community health services, and nominees from a variety of bodies were members of the regional hospital boards and boards of management. Many of the latter became members of the newly constituted health boards. Hunter[52] identified "local authorities, trade unions, voluntary bodies, business groups, churches and professional associations" as bodies with nominees on health boards selected by the Secretary of

State. Health boards with a medical school also have a university representative.

These nominees are expected to represent the interests of patients, though there might be some doubt about how far they would carry out this obligation. Imagine, for example, the situation of a trade unionist, from the National Union of Mineworkers, when told that solid fuel was *not* the preferred choice after an appraisal by the Building Division.

The role of health boards is to "deal with major policy, strategic planning decisions, the broad allocation of resources and matters of substantial interest to the community".[53] Hunter,[54] drawing on a study of two health boards between 1975 and 1977, has cast serious doubt on their ability to do so. First, he states that members were unclear as to what was actually required of them, although their "enthusiastic" reception of the initial statement of priorities in 1976 suggests this impotency should have been short-lived. And second, he suggests that the health board officers tended to dominate the thinking of members because the former had the advantages of greater time, expertise and resources at their disposal. This problem is less easy to correct, but it depends on the debatable assumption that officers take the role of 'masters',not 'servants' to their members.

Fourth, a variety of bodies have existed with whom the regional hospital boards, and their successors the health boards have been expected to consult. Thus the regional hospital boards were expected to consult local authorities, NHS Executive Councils and other interested parties when proposing a building scheme.[55] And health boards have also been expected to consult local authorities, the new constituted local health councils (about which we have more to write shortly), area professional consultative committees, staff associations, and any others with a "valid" interest when decisions involve the change in use of premises or their closure.[56]

Fifth, since the reorganisation of the NHS in 1974 there have been improvements in the machinery of negotiation between the health boards and the local community and local authorities. The first has come through the establishment of local health councils,[57] whose geographic boundaries of responsibility usually coincided with the district health authorities then in existence.[58] Like health board members, local health council members are nominated, not elected. Local authorities select their own nominees; and the health boards select the nominees of voluntary agencies, trade unions, and other bodies with an interest in the health services in that particular community. Local health council members are also expected to

represent the interests of the community as a whole and not the bodies which nominated them. Finally, they are also unpaid.[59]

Whilst the composition of the membership of local health councils and health boards have much in common, they have been assigned different roles. As noted above, the health boards are expected to set priorities. Councils, on the other hand, are expected to act as a channel of communication between their health board and the local community, in both directions. They also have an advisory and monitoring role. For example, among the topics considered suitable for their examination are the quality of health services provided, plans for new services and changes in the use of existing services, facilities for patients, waiting lists and the co-operation between the health service and the related local authorities services.[60] The investigation and reporting on individual complaints (which is the responsibility of the Ombudsman) and on the clinical treatment of individuals (with is the responsibility of the professions) are the only topics expressly excluded from the consideration of the councils, though they can advise individuals how and where to make their complaints.

The resources at the health council's disposal are meagre. As noted above the members are unpaid, and their contributions must be fitted in with their several other commitments and, because they often serve voluntarily in other capacities, such free time as they can give to their local health council must be very limited. The members have the services of a paid secretary and access to health board papers relating to the interests of their council, but not much more. In the financial year 1982-83 the Greater Glasgow Health Board spent £93,000 on its five health councils out of a total revenue allocation of £370 millions.[61]

The second improvement is in the machinery of negotiation between the health boards and local authorities. It will be remembered that there are local authority nominees on the health boards and local health councils, and that local authorities must be consulted by the health boards when the use of premises is to be changed or they are to be closed. Nevertheless, it had been felt, prior to the reorganisation of the Scottish Health Service (in 1974) and local government (in 1975) and afterwards, that the existing machinery left much to be desired and that joint liaison committees should be set up between the two bodies which would involve their members and senior officers.[62] Three years later committees were set up in most parts of Scotland.[63]

Consultation is costly in time and effort. Yet it can offer positive

benefits if handled in a sensible way. Consultation can draw out the special knowledge of the interested parties and so improve the decisions reached. Thus the local health council members may be more aware of the problems of physical access to the several proposed sites for a new health centre. Consultation can also act as a channel to communicate information, and so avoid misunderstandings and make proposals more acceptable. For example, a change in the use of premises may give a false impression that redundancies are expected, whereas in reality no redundancies are intended. Finally, consultation can help resolve the conflicts of interest that are bound to arise. Even if give-and-take is not possible in respect of any particular proposal, it may be feasible for a series of proposals over a period of time.

We test the willingness of the SHHD and the Scottish Health Service to take account of the interests of them, even at some cost to themselves, by reference to the patient's geographic access to facilities. Judged by the principles for the design of casualty and accident departments[64] and the original Hospital Plan for Scotland[65] patient convenience was very low down on the list of priorities. What mattered was functional efficiency, with facilities being concentrated so that 24 hours a day care, of high quality, could be provided. Only occasional concessions were made to those living in peripheral areas such as Fort William, Dunoon and Oban. This ordering of priorities was still to be found some ten years later in the SHHD's design guide for health centres,[66] where the recommendations continued to be based on the size of the catchment population to be served and not its access to alternative facilities as well.

Yet a change in emphasis has occurred. First, the Borders are to have a new district general hospital, even though the catchment population will be smaller than a similar hospital in the central belt of Scotland, and *consideration* is being given to a similar facility in Dunfermline instead of the continued reliance on hospitals in Edinburgh. Second, the SHHD has revised its recommendation in the design guide for health centres so that health centres with smaller catchment populations than previously may have X-ray facilities if access is otherwise difficult to obtain.[67] The policy was, for example, recently implemented in Ullapool. Finally, an analysis of the provision of out-patient clinics at health centres in Scotland indicates that patient convenience was a consideration, even at some cost to the health boards and consultants.[68]

Consultation can, however, only go so far, at least as judged by existing shortcomings. Thus we find patients in hospital who do not need the medical and nursing services it offers, because there is no suitable place

to discharge them to; and there are others in the community who could benefit from just such hospital services if only accommodation were available. This leads to the sixth solution to trading between the Scottish Health Service and other bodies, which is particularly appropriate for conflicts of interests. This solution lies in the definition of the respective responsibilities of the various bodies. The SHHD has gone some way to doing this for the Scottish Health Service.[69] However it is not known how far other bodies have gone in the same direction.

The definition of responsibilities, whilst helpful, is not the complete answer in practice. As the SHHD recognises it has interests that can "overlap" or be "complementary" to other bodies like the local authorities and voluntary agencies, which can make a division of responsibilities that is acceptable to all difficult to achieve. It was to overcome this problem,[70] and to encourage local authorities to take over their responsibility for those no longer requiring continuous nursing and medical care, that in 1980 the SHHD earmarked some of its own funds to help finance projects set up and run by local authorities. These funds came under the general title of 'support finance'.[71]

The SHHD finances up to 60% of the capital costs and, initially, up to 60% of the revenue costs which tapers off after five years. Thereafter the local authority would be responsible for the full financial cost of the proposal. The proposals are submitted by the health boards, but none of the earmarked funds are allocated to them. The financial estimate for 'support finance' in the year 1982-83 was £2 million. However, as can be seen from the table, five of the fifteen health boards still had no schemes in operation and only half of the allocation was spent.[72] In the following year £2.7 millions was spent and it would have been much higher still had not Strathclyde Regional Council continued its opposition to participation.

Another cash transfer scheme which will modify the conflict of interests between the Scottish Health Service and local authorities where their interests "overlap" and are "complementary" is a development in Supplementary Benefit provision which took effect in November 1983. It is now possible for local authorities and health boards to relieve themselves of the financial responsibility of persons eligible for supplementary benefit who have been admitted to a registered nursing or residential home on or after the date when the new provision took effect. Since registration rests with the health boards (for nursing homes) and local authorities (for residential homes) their only constraint would, superficially, seem to be the availability of suitable (private) accommodation.

In conclusion, consultation can lead to better and more acceptable decisions being made when more than one party is involved. But conflicts of interest are inevitable. These can be resolved by negotiation, if the various parties have something to negotiate. And the willingness of the SHHD to use financial incentives in the Scottish Health Service's relations with local authorities is a move in this direction although, for one reason or another, the response of local authorities has been less than enthusiastic. However, the Treasury expects more than a 'quid pro quo'. It expects its agents, including the SHHD and the Scottish Health Service, to be prepared to take decisions against their own interests if they thereby serve the general interest. It is perhaps expecting a lot, yet in recent years there is some evidence of this accommodation with the Scottish Health Service in circumstances that were not forced upon it by the Treasury. One may expect the accommodation to be still more evident in proposals that have required the Treasury's approval.

The Quantification of Costs and Benefits

As far as possible all important costs and benefits should be quantified, preferably in financial terms and based on the economist's concept of 'opportunity cost'.[73] This concept values resources in terms of their best alternative use, and not necessarily in terms of what is paid for them. For practical purposes the Treasury accepts the two are approximately equal in value,[74] though there are notable exceptions to which we make some later reference.

The requirement to include *all* important costs and benefits can involve putting values not only on those borne by the Scottish Health Service but also on others, such as local authorities and other groups identified in the previous section. To contain this section within reasonable bounds we examine the application of the opportunity cost concept to the Scottish Health Service's own activities. Parallels with other bodies will be evident, but it is not our purpose to indicate them. Our general conclusion is that past deficiencies in the application of the concept of opportunity cost have largely been removed, although one important one still remains.

The overwhelming expenditure by the Scottish Health Service is on goods and (labour) services, and the Treasury has accepted valuing them in terms of their market prices is an acceptable measure of their opportunity cost.[75] To this extent there is no practical difference between economists and other professional groups, in particular accountants, engineers and surveyors, when putting a value on the resources used.

Where practice differs between economists and the other professional groups is in their valuation of resources – in this case (equipment), land and buildings – already in the possession of the Scottish Health Service.

Economists would expect these assets have an income or realiseable value inputed to them just as much as would actually occur if they were not in its ownership. Ideally, the ownership of an asset should make no difference to the value of its best alternative use. It is a criticism of past practice that it once did, and may still do so. Those responsible for their use may, nevertheless, have valued them as an economist would, given the circumstances they faced. Thus if they treated property as though it were a 'free good', then more likely than not, for them, it had *no* alternative use. There can be little doubt that this 'misuse' of property arose from the constraints put on its realisable value on the open market, so that the opportunity cost to the user was (much) less than it could have been. As we now show these constraints have largely been removed, and hopefully the distortions that went with them.

Three distinct kinds of constraints can be identified. The first is the requirement, when property is to be developed, that first refusal be given to other government departments, then to local authorities, and only then may the property be put on the open market. This requirement was removed in 1979, and property may go straight onto the local open market.[76] The second constraint is the *free* transfer between government departments. This was removed in April 1983, and now the full market price must be paid.[77] The third constraint is the inability of the Scottish Health Service to obtain planning *permission* from local authorities for property it might wish to dispose. It could obtain a planning *opinion*, but this is less binding on the local authority and so worth less to any prospective buyer. Thus, in 1967, one property was valued at £30,000 in its current use as agricultural land, but might have been worth £1.75 million with planning permission for its commercial development.[78] There had been some uncertainty as to the ability of government departments to obtain planning permission.[79] But the government has accepted its desirability, and necessary legislative changes have been introduced to remove any further ambiguity.[80]

The removal of these three constraints means that the SHHD can obtain the full open market price on such property as it wishes to dispose. Equally it must pay this price for any it acquires, even from another government department. As a result one may not only hope, but also expect the Scottish Health Service to make better use of its property from the point of view of society as a whole. However, the removal of these constraints will not effectively bring together the different perspectives of economists and other professional groups such as accountants, engineers and surveyors in valuing assets in the Scottish Health Service's possession.

Given these past constraints, it is to be expected that the SHHD and Scottish Health Service would have property surplus to their requirements. The problem then comes in identifying it. In some cases the surplus may arise from the SHHD's own National Building Programme and be self-

evident. But others will be less obvious to the SHHD and may only be known to the health boards. And if one recognises that some property is *under* used, and to that extent is also surplus to requirements, then the need to obtain 'grass roots' information becomes even more important.

The DHSS has taken a variety of measures to obtain this information,[81] but the Scottish Health Service has largely relied on financial incentives by agreeing to return to the health boards part or all of the proceeds from the sale of their property. This scheme was introduced in 1977 when the full amount up to £30,000 per sale was returned.[82] The limit has subsequently been raised: to £60,000 in 1981 and to £100,000 in 1984.[83] Information on the sums returned to the various health boards in the financial year 1982-83 is given in the table. It will be seen that all but four of the fifteen health boards benefitted to some extent, but that the sums involved were trivial in relation to their final (revenue plus ordinary capital) allocation. The SHHD also put restrictions on the use of these funds to conform with the national programme of priorities.

Parliament also imposes constraints on the use of the funds it votes. Generally, funds it votes for any given year must be spent that year and may not be spent later. In addition, funds voted for specific purposes must be spent on that purpose and not on any other. Since spending decisions within the SHHD and Scottish Health Service tend to be implemented at the health board level and below, it is easy to imagine the distortions that can arise. For example, rather than have a large shortfall of expenditure in relation to its allocated budget, one health board suddenly approved the purchase of a body scanner at a cost of £400,000, whose subsequent annual revenue consequences were estimated to be £50,000.[84] Equally, the lack of 'virement' – the ability to transfer funds between votes – can bring a mismatch between revenue and ordinary capital allocations with, say, sufficient funds to build facilities but insufficient funds to run them.

In practice, however, the system of financial control is more flexible than the Parliamentary votes would suggest. First, the SHHD votes comes within the Scottish Office general vote, and the Secretary of State ha discretion in allocating its share of that total prior to obtaining Cabinet approval. Its share can be subsequently adjusted – though not the overall total – only with the Treasury's prior approval. In the past that approval has usually been given.

Second, whilst the hospital and community health, but *not* the family practitioner[85] services are cash limited, the SHHD has allowed health boards a limited ability to shift funds between financial years. Since the financial year 1976-77 the health boards have been allowed to 'carry-forward' underspending up to 1% of their combined total of revenue and ordinary capital allocations.[86] As one would expect, under cash limits health boards which have exceeded their allocations have had the full

amount deducted from the following year's allocation. The health boards have also been able to shift funds between financial years in a more planned way, with their ability to 'bank' or 'borrow' funds with the SHHD. These funds are protected against inflation. However, the SHHD has required to be notified of the health boards' plans within one month of the beginning of the financial year and, in recent years, the health boards only knew their initial allocations less than one month before the financial year began. It is important to appreciate that both these schemes to transfer funds between financial years are an arrangement internal to the SHHD. The department itself is subject to the Treasury discipline of cash limits.

Data on the extent of 'carry forward' to the next (1983-84) financial year, and on 'banking' and the final allocations in the current (1982-83) financial year by health board and for all health boards are given in the table. It will be noticed that two health boards overspent their approved budget, in the Western Isles case by an extent which was purely accidental; and three were close to the 1% limit. Overall £4.3 million was underspent, 0.38% of the final allocation. Seven of the fifteen health boards used the 'banking' facility with the SHHD: six to defer expenditure, and one to bring it forward or to draw upon accumulated balances. Marginally less, £3.5 million, was credited to health boards for future expenditure this way than from the 'carry forward' arrangement.

The restriction on the transfer of funds between votes is also more flexible than the Parliamentary votes would suggest. It has already been noted that the Treasury is receptive to requests for transfers of funds between votes, so long as the cash limits total is not exceeded. In addition, the SHHD in effect allows the health boards 100% 'virement' – i.e. the full transfer of funds – between their revenue and ordinary capital allocations. Earmarked funds are excluded, of course, but they are trivial in magnitude compared with the health boards' total allocations. Non-cash limited family practitioner services are also excluded for the obvious reason that the SHHD would then lose control over health board expenditure completely. In recent years the SHHD has allocated about half its capital budget to the health boards, although the proportion varies widely from year-to-year. The total allocated is distributed between the health boards on the same principle as their revenue allocations, i.e. using the SHARE formula.[87]

Data on the ordinary capital allocated to health boards and on that actually spent are given in the table for the financial year 1982-83. Only three health boards spent less than their allocation, and six exceeded their allocation by more than 20%. Combining all health boards, expenditure exceeded the amount allocated by 15%. Marginally more use was made of 'virement' than either 'carry-over' or 'banking' to redistribute the health boards' allocations. Combining all three schemes of transfer, then for all health boards some 1.05% of the final allocation was effectively carried overto the next financial year which would not have been possible without

'carry-forward' and 'virement'. For some individual health boards this proportion was much larger: for example, it was 2.37% for Argyll and Clyde Health Board.

The final financial constraint is on the unit costs of construction, referred to as 'departmental cost allowances'. They have a long history. The levels are set by the SHHD, with reference to negotiations between the Treasury and the DHSS, and apply to *all* capital schemes however financed and approved. They are intended to contain capital expenditure without the need to review, in detail, individual schemes before their approval. The only *regular* revisions to the departmental cost allowances are for significant and permanent increases in building costs for the industry as a whole. No trade-off between the allowance set and its revenue consequences is permitted, and the incentive to innovate must be greatly dampened. No moves have been made to remove this constraint.

The discussion so far has concentrated on the extent to which the signals to those making decisions about the use of resources within the Scottish Health Service reflect the full opportunity cost of these resources.

Finally we turn briefly to the extent to which the benefits of proposals – in so far as they are the outcome of proposals – are properly valued in the Scottish Health Service. Usually, in fact, they are not measured at all. First, there is the problem of knowing what the outcome is likely to be. When that is known, the problem of valuing it remains. These two problems largely explain the exemptions given to strategic decisions and clinical activities from option appraisal and cost-benefit analysis, respectively, before their approval in principle.

It is the position of this paper that such an attitude is unduly restrictive. Whilst there is no answer economists can give to measuring the outcome of health services, they have much experience in putting a value on it, once it is known. Perhaps the attempts at putting a value on human life[88] can hardly expect to gain universal acceptance just yet. But there are many other benefits from medical intervention or care whose valuation would be much less contentious: for example, the saving of travel *time* as well as travel costs to patients by decentralising the provision of facilities.

In conclusion, we have every reason to expect that the real cost of resources within the Scottish Health Service is now recognised by those using them, or at least by others responsible for their use. To that extent better decisions should now be made. The only exception identified is the continued use of department cost allowances which limit the unit costs of construction. However, caution must be exercised so that assets in the ownership of the Scottish Health Service are not assumed to be free in any evaluations of proposals. Finally, the inability and unwillingness to measure the benefits of programmes is a severe and, to some extent, an

unnecessary constraint on the range of proposals which have an economic element in their proposal. Economists need to be given a freer hand so that the effect of this constraint can be reduced and option appraisal be more widely adopted.

Discounting

When the Treasury originally recommended investment (i.e. option) appraisal for the public sector it was discounting it had in mind, rather than any of the other guidelines identified in this paper, and it was to be applied only to the nationalised industries. The reasoning is that the nationalised industries did not have direct access to the capital market, as did the private commercial sector, but instead obtained funds indirectly and on more favourable terms. Given the implicit assumption that the two sectors were in competition for limited capital finance, it was felt necessary to impose some sort of economic as well as financial discipline. One method chosen was to require the nationalised industries to secure a rate of return on their investment thought to be at least comparable to that obtained in the private sector. The rate required is referred to as the 'test discount rate' and represents, in effect, the opportunity cost of capital employed by the nationalised industries. This reasoning has not changed, even when, as in 1969, the request to discount was extended to *all* public sector investment,[89] including that funded through the SHHD. The exemption of strategic decisions and clinical activities from option appraisal means that in the Scottish Health Service discounting will serve the useful but rather limited role of screening out options whose additional capital requirements fail to satisfy the test discount rate.

The test discount rate has been changed periodically, and is set assuming constant prices, i.e. no inflation. Initially it was 8% per annum: in 1969 it was changed to 10%; and in 1978 it was changed to 5% and to 7% when a cost-*benefit* analysis of a public service such as the Scottish Health Service was involved.[90] For practical purposes 5% is now used for almost *all* proposals by cental government, except by the Department of Transport in its appraisal of roads.

In the sub-section on the selection of options, three sets of choices were indicated. We assess the use and importance of discounting for each of them in turn. The first set of choices made by the regional hospital boards, and their successors the health boards, concerns the catchment populations to be served, the site for the hospital, its mix of facilities and the phasing of its construction. Even if the capital and full revenue consequences of each option had been estimated in financial terms, it is unlikely that discounting was used to make the estimates commensurable. It is probably only recently, with the new styled 'option appraisal' that *both* parts of the appraisal have been included. However, the past omission of discounting in the appraisals is unlikely to have made much difference to the eventual

choice except the last named one, the phasing of construction.

The second set of choices concerns the design of hospital departments and health centres. Again the study groups would have been conscious of the capital and revenue consequences of the different options. But, again, it is doubtful whether discounting came into the picture in a formal manner. The design guides and hospital planning notes still form the basis of health service planning, and any serious errors as a result of past omissions are now embodied in current conventional wisdom.

The third set of choices concerns the building of the facilities. It is in this respect that discounting is known to have been used in a systematic if limited way for a number of years. Two choices where discounting has been given a central role are the choice of fuel[91] and the choice between building new or upgrading an existing facility.[92] Discounting is part of the training of engineers and surveyors just as much as for management accountants. This is not to say that they are very familiar with it; and the manual produced by the DHSS,[93] to show how widely it could be used, has been available to engineers and surveyors in the Scottish Health Service. However, the existence of cost allowances has been a severe deterrent on their use of discounting on a day-to-day basis. There is little point in evaluating metal versus wooden frames if the cost allowances exclude the former.

Some Concluding Remarks

This paper opened with two quotations, both from experienced civil servants and both suggesting that option/investment appraisal may be expected to have a modest impact. What does our review of the experience suggest for the Scottish Health Service?

Option appraisal is the title given by the SHHD (and DHSS) to the set of Treasury guidelines intended to introduce an economic element into the appraisal of proposals. Three of the guidelines are the type that independent agents, whether the health boards or the SHHD itself, might be expected to adopt. In the early 1960s the SHHD and the regional hospital boards did consider a limited variety of options, but there is little evidence that the list has been extended. The SHHD and the Scottish Hospital Centre also appraised many of the design solutions for their efficiency, but this process of backchecks and monitoring seem to have largely disappeared on reorganisation. It is hardly done at all now for individual schemes, as is required. Such evidence of its continuance, as exists, is the periodic revision of bed requirements. Finally, there is no evidence of adjustments being taken for risk and uncertainty. In respect of all three guidelines there seems room for improvement, and the Treasury's reminder of their value should not be ignored.

The three remaining guidelines are specifically economic in their content. The requirement to include *all* costs and benefits has already been met, to some degree, and the Scottish Health Service has shown some willingness to serve the interests of other parties at its own expense. A proper valuation of these costs and benefits would indicate if they have gone too far in this direction or need to go further. There has been an improvement in that valuation in respect of its own resources, with three notable exceptions: the continued application of cost allowances to capital expenditure and the exemption of strategic decisions and clinical activities. The exemption of clinical activities is unduly restrictive. The DHSS has begun to recognise its value. More importantly, so has the medical profession. The door to the economic evaluation of clinical activities is not shut; it is only its hinges which are stiff. Rather less, however, can be said for the willingness of the Scottish Health Service to put a correct value on the resources of others, even when it is sensitive to the impact its programmes may have on them. However, the new styled option appraisals are a movement in the right direction, because they identify explicitly some of the limits these values should have. Do individual patients living in Fife justify an additional £500 of expenditure to obtain acute in-patient care in Dunfermline rather than in Edinburgh,[94] even if other issues are also involved? Finally, several professional groups employed by the Scottish Health Service have been taught about discounting; but there is little evidence of the familiarity that comes from its everyday use. Departmental cost allowances may inhibit the engineers and surveyors. But there is less excuse for the (management) accountants. Nevertheless, there has been a noticeable improvement in the use of these specifically economic guidelines compared with the 1960s, even if there is no room for complacency.

Finally, option appraisal can be costly in time and resources, especially for major capital projects of a 'one-off' type. Two years is not an unrealistic estimate for some hospital schemes. No doubt if the time can be spared the exercise could be justified too,. But if appraisals are to be applied to all capital proposals, with the familiar exemptions, then more use must be made of the routine practices adopted by the Building Division, for example in the choice between building new and upgrading existing facilities. This mechanistic approach may seem counter to the spirit behind the original introduction of appraisal – see the Foster quote – but it provides useful information to those, who in the end, must exercise judgement.

Select Financial Statistics 1982-83, by Health Board (£ million)

Health Board	Carry forward to 1983-84	(Banking) borrowing	Sale of land/ buildings	Support finance	Ordinary capital allocation	Ordinary capital spent	Final allocation
Argyll & Clyde	0.264	(1.000)	0.053	–	2.433	3.194	85.6
Ayrshire & Arran	0.354	(0.700)	0.013	0.090	1.997	1.906	57.1
Borders	0.112	–	–	0.165	0.549	0.627	17.0
Dumfries & Galloway	0.303	–	0.019	0.027	0.795	1.312	30.4
Fife	0.140	(0.800)	0.094	–	1.812	1.955	55.5
Forth Valley	0.293	(0.800)	–	0.018	1.470	1.507	54.0
Grampian	0.798	1.000	0.377	0.084	2.727	4.171	103.7
Greater Glasgow	1.514	–	0.093	–	6.444	6.529	316.2
Highland	0.205	(1.128)	0.107	0.026	1.107	0.618	42.7
Lanarkshire	(0.055)	–	0.006	0.023	3.012	3.641	95.4
Lothian	0.289	–	0.286	0.240	4.680	5.384	190.9
Orkney	0.031	–	–	–	0.105	0.088	3.1
Shetland	0.034	–	0.005	–	0.132	0.253	4.0
Tayside	0.380	–	0.094	0.110	2.565	2.924	114.0
Western Isles	(0.336)	(0.031)	–	0.240	0.174	0.487	6.0
All HBS	4.326	(3.459)	1.147	1.023	30.000	34.595	1,175.5

Source: Scottish Office Finance Division 5B

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