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Public Expenditure Rules and the NHS

by

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DISCUSSION PAPER 3

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ABSTRACT

Certain rules have been developed on the minimum increases in public spending needed to cover the costs of aging and the costs of new technology. In practice elderly people only use certain kinds of service and much of the increase has had to be used to finance changes in other services. From 1978 to 1982 the number of people in England over 75 grew by 250,000, needing an extra £220 million at 1982/3 prices but spending on age sensitive services rose by £116 million. Such spending should be evaluated separately and allowance for the extra costs of aging should actually be spent on those services.

The problems of 'technology' really involves a small number of treatments which have heavy demands on in-patient resources. Smaller changes in technology can be financed through normal capital and revenue budgets. There should be a special fund to cover the small group of innovations which make heavy demands on in-patient resources. There should be an evaluation and selection carried out by a panel with local as well as central representatives. The planned programme for introducing brain scanners could serve as a model.

At present the adjustment, made in aggregate expenditure for demography and for technology is not effectively linked to actual changes in spending at the programme budget level.

The adjustment in spending on age related services has not, in fact, been at the rate of 0.7 per cent a year: it has in fact been at about half this rate - 0.35 per cent.

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Public Spending and the NHS

Over the past decade the DHSS has developed certain guidelines or rules for future rates of growth of spending in real terms in the NHS. There are allowances for demographic change and for changes in technology. The allowance for demographic change gives the current result that spending in real terms should grow by an average of 0.7 per cent a year to maintain a constant standard of service to an aging population. The allowance for technology is taken to be that spending should grow by 0.5 per cent per year to cover the costs of medical innovation. Taken together the rules imply a policy aim of providing a service of constant per capita amount but adjusted to reflect a changing population and changing methods of care.

The need for rules arises out of the PESC process, the annual competition for shares in public spending. Ministers and civil servants have to weigh up the case for spending on the NHS as compared to spending on other social programmes such as housing and education: and the bloc of social programmes is competing as a whole with other types of spending. At a time of great pressure on public spending it has been highly important to the DHSS to have evidence which seemed to provide a more objective case for increasing spending on the NHS.

The aim of this paper is to provide some analysis of how these rules are derived and of whether, in practice, the out-turn in spending corresponds to them. What actual adjustment does spending in the NHS make and how adequate does this seem in light of the rules?

II

The Rule on Demography

The rule on demography has been far better developed than that on technology. The pioneering work was that done for the Guillebaud Committee in the mid 1950s by Abel Smith and Titmuss.⁽¹⁾ They were concerned about the alarm, then current, about the possible effects of an aging population on social services costs. They forecast that if the elderly continued to take the same share of total spending, increasing numbers would have little effect on total spending. In the mid 1950s treatment for people over 75 accounted for about 9 per cent of the total cost of the NHS and all over 65 took about 20 per cent. A much higher proportion of spending was on hospital treatment for the child and younger adult population than is the case today. Changes in age structure were likely to add only 3½ per cent to total public expenditure on the NHS by 1971/72. They added, however, an important qualification about the possible effects of rising expectations about treatment.⁽²⁾ The forecasts might be too low if the quality and standard of service to elderly people were raised. In practice by 1981/82 people over 75 were taking 26 per cent and those over 65, 43 per cent of total spending, reflecting rising treatment rates as well as changing numbers.

For a long time there was little further mention of demographic effects until, in the early 1970s, Annual Reports of the Department began to speak ominously but vaguely of the effects of an aging population. It was the work done on programme budgeting in the early 1970s which led to the development of the current rule. The programme budget which was available from 1974 on made it possible to allocate spending much more accurately between age groups. The applications of this in the public spending context do not seem to have been fully anticipated: but during the discussions over the cuts in 1975 the programme budget played a crucial role. Within the DHSS the closer relationship between the programme budget and the Public Expenditure survey was marked in December 1975 by bringing them together in one branch.⁽³⁾

The rule is currently developed as follows. First, programme budget data are used to determine the average amount spent per head in each age group (Table 1). These figures are derived from data

on the use of services and on unit costs. These figures for average costs are then applied to the projections of population to give the total expenditure required to maintain a constant quantity of service to a population changing in composition. The aim implied is to provide the same quantity of service at a constant average cost, to this changing population. Each new person over 75 will 'need' the same amount spent per aged head as her senior in that age group.

It would be possible to refine the way in which these estimates are made. Thus the calculations of hospital costs employ figures for cost per patient day, rather than cost per case. The use of 1979 data on the proportions of beds occupied by different age groups will lead to some under-estimate of the effects of rising treatment rates on the costs of aging. ⁽⁴⁾ The method of projection implies that extra patients are treated at constant average cost, which may be too pessimistic. It would be useful to have more accurate estimates of what it actually does cost to treat an elderly person in the NHS, but in the absence of such estimates, we can accept that the allowance made has been reasonable. But, has the allowance been made in practice?

Table 1

Estimated Current Expenditure per head, England (£), 1981-82

	<u>Total</u> (all ages)	<u>All</u> <u>Births</u>	<u>0-4</u>	<u>5-15</u>	<u>16-64</u>	<u>65-74</u>	<u>75+</u>
Hospital and Community Health Services	160	915	150	70	84	325	770
Family Practitioner Services	50	60	50	40	45	65	115
Personal Social Services	45	20	60	65	15	65	275
TOTAL	255	995	260	175	145	455	1160

Source: The Government's Expenditure Plans 1984/5 - 1986/7
Cmd 9143 II, p.77.

The NHS has received additional public expenditure to cover the costs of aging: but is the money translated into actual spending on services? Through the programme budget data it is possible to look at the growth rate in spending on age related services.

The growth rate of spending on age related services is somewhat below that of spending on other services (see Table 2).

Table 2

Programme Budget, Hospital and Community Health Service Gross Current Expenditure, (£m)/%, 1982-83 prices, England

	<u>1978-79</u>	<u>1982-83*</u>	<u>Change</u>
'AGE SENSITIVE SERVICES'			
Acute IP	2847.8	2872.9	1.0
Geriatric IP and OP	683.8	725.3	6.1
District Nursing	190.8	230.3	20.7
Chiropody	25.0	24.8	-0.8
Joint finance (estimated share of elderly)	8.9	18.9	212.0
	<hr/>	<hr/>	<hr/>
Total	3756.3	3872.2	3.1
	<hr/>	<hr/>	<hr/>
ACUTE OP	795.3	852.6	7.2
OTHER SERVICES	3301.6	3417.6	3.5
	<hr/>	<hr/>	<hr/>
Grand Total	7853.2	8142.4	3.7
	<hr/>	<hr/>	<hr/>

*Provisional figures

Source : House of Commons, Fourth Report from the Social Services Committee, 11 July 1984, p.13.

From 1978 to 1982 spending on age sensitive services (strictly defined) grew by 3.1 per cent in total while spending on other services rose by 3.5 per cent. Spending on some services used by elderly people did rise quite rapidly. Thus, spending on geriatric services and above all on district nursing, rose quite rapidly as did joint finance. But the pattern of adjustment of spending on acute care is more question-

able. Spending on acute in-patient care rose by 1 per cent over the whole period. The effects of this may have been reduced by a rise of 7 per cent in spending on out-patient care. Other evidence suggests that more treatments are being undertaken on an out-patient basis, especially for younger patients. (5) Out-patient care may have become a closer substitute for in-patient care thus freeing some beds formerly occupied by younger patients for elderly people. But even on the most generous assumptions about substitution, the figures imply a lack of adjustment to aging within the health service. It is difficult to justify, for example, why spending on obstetric services rose by 7.9 per cent and on the school health service by 11 per cent, in both cases faster than spending on geriatric services, where spending rose 6.1 per cent between 1978/79 and 1982/83.

In reality, there are reasons for increased spending other than the desire to meet the rising costs of aging. First, there is growth arising from long established policy changes which have nothing to do with aging - for example, the commitment to better services for younger mentally ill and for mentally handicapped people. Secondly, there are improvements in services which take place through technological change and through the desire to improve standards where the client population is falling or static. Spending on obstetrics and on the children's services has gone on increasing when demographic trends pointed in the other direction. The effect of population change is a net figure. The reduction in the number of children in the past few years is set against the rise in the number of very elderly. This implies a flexibility in adjusting services to maintain a constant real cost which may well not exist in practice.

Between 1978 and 1982 the number of people in England over 75 grew by 250,000. At 1982-3 prices they would have used another £220 million of extra spending, but there was only £116 million extra spending on age related services strictly defined. The rapid development of district nursing and of certain forms of out-patient care may have helped somewhat in practice. But there are certain kinds of treatment which require in-patient care. If the aim of the rule on public spending was to ensure that there was not additional pressure on most services from the additional 'demand' then the aim was not realised in practice.

The increased pressure would have been most serious in those areas of care such as the orthopaedic services where district nurses can do little to help and where it is more difficult to substitute out-patient care for younger patients.

It could be argued that growth in social services spending has compensated for the low rate of increase in NHS spending. This has not been so far as the elderly are concerned where the growth in spending on age sensitive services has been very modest. Services for the elderly have changed, as shown in Table 3.

Table 3

Personal Social Services, Gross Current Expenditure (1982/83 prices)

	<u>1978-9</u>	<u>1982-3*</u>	<u>% change</u>
Residential elderly	538.5	554.8	3.0
Day care elderly	35.4	45.8	29.4
Home helps	243.0	252.9	4.1
Meals	45.2	44.2	-2.2
Aids etc	30.0	28.1	-6.3
<hr/>			
AGE SENSITIVE SERVICES	892.1	925.8	3.8
OTHER SERVICES [⊕]	1285.9	1416.8	10.2
TOTAL PSS INCLUDING JOINT FINANCE	2185.9	2361.5	8.0

* provisional figures

⊕ including estimated shares of Joint Finance for mental handicap and mental illness

Source : House of Commons, Fourth Report from the Social Services Committee, 11 July 1984, p.14.

Overall, from 1978-82 spending on services grew by 8 per cent compared to growth of 3.8 per cent for age sensitive services. Thus the proportion of total expenditure on those services known to be of most benefit to the elderly fell from 41 to 39 per cent of total spending. As in the health services, the amount of the increase was well below that required to meet the change in population.

III

The Rule on Technology

The calculations here have never been made as precisely as those for demographic change. A general and rather vague state is perceived as the "constant process of medical innovation" and allowance is made for this.

"In its forward costings the Department of Health has assumed that additional expenditure on the hospital and community health services nationally of $\frac{1}{2}$ per cent a year is necessary as a contribution to the costs of this constant process of medical innovation." (6)

In practice this rule has to be supplemented by some even vaguer hunches about the process by which innovation is taken up. There is a general feeling that demand is limitless and also that the rate of application of new technology is solely or mainly constrained by the availability of funds. There is also a general feeling that doctors are waiting for a chance to start large numbers of expensive units. These are, in effect, hypotheses about the underlying state of 'demand' for innovation by doctors in the absence of a budget constraint. It is also common to distinguish between innovations in treatment and intermediate innovations in methods of investigation. What does economic logic suggest about the process of innovation: how does this process impinge on the NHS and what could be suggested in terms of a sensible policy rule for dealing with the extra costs of innovation?

The process of innovation could be one in which there were major advances every year on the supply side involving the complete abandonment of existing investments and methods. This is an unlikely model for much innovation in any field given the costs of learning and investment, the difficulties of assessing returns and the time needed for diffusion of a new technique. A technique may be revolutionary but it is introduced in an evolutionary way over a period of time.

A major innovation takes place in a field and then engages the attention of 'entrepreneurs' and moves high up on the shopping list of professionals in the field in terms of requests of resources. Once the innovation takes place it then diffuses to more centres: developments and modifications take place in methods of treatment.

There will usually be more or less radical ways of carrying out the treatment. Average costs per case may decline as the treatment spreads. To begin with, publicity will increase the demand for the innovation and the atmosphere of crisis surrounding it. The evidence suggests that it is impossible to predict in advance where major developments in treatment are going to take place. For example, ENT surgeons have been treating fewer cases because, compared with orthopaedic surgeons, they lack major innovations, but a discovery of a new surgical method of dealing with deafness would transform the situation and would create enormous demand for the specialty. Thus an innovation once it has taken place works itself through over a number of years but it is impossible to tell in advance where it is going to take place.

The evidence also suggests that the number of major changes in treatment on offer at any one time is quite limited. From British and American sources it is possible to compile shopping lists of innovations. For example, the British one set out in Health Care and its Costs⁽⁷⁾ covering innovations in treatment, included :

- hip joint replacement surgery,
- haemodialysis and kidney transplantation,
- coronary artery by-pass grafting,
- neo-natal intensive care,
- treatment of haemophilia,
- bone marrow transplants.

American 'lists' include all of these together with radiotherapy and chemotherapy for cancers and Total Parenteral Nutrition (TPN) a procedure by which people who cannot take food normally are nourished over longer periods.⁽⁸⁾ This procedure, which costs over \$40,000 a year per person, is already being quite widely used in the United States but there is substantial doubt about whether it is really beneficial except for a small number of rare conditions. American lists differ from British in making less of the distinction between intermediate and final innovations, with more stress on diagnostic radiology, intensive care units and body scanning.

In the official discussions the desire to spread innovation battles with anxiety about unnecessary over-elaboration in treatment methods. There may be a tendency to over-estimate the effect of technology as compared to other effects on cost. Thus the most recent official study of the Medicare programme in the United States concluded that the effect of technology and special medical inflation, taken together, accounted for only about one third of the total increase in Medicare expenditures. ⁽⁹⁾ Increases in enrolment and general price inflation accounted for the bulk of the increase.

How does the NHS react to innovation? The recent study by Aaron and Schwartz gives some new evidence on this. This compared American and British performance for a number of kinds of final treatment. Of these, it showed that the degree and intensity of rationing within the British system was uneven, reflecting in part different patterns of professional priority. Some of the treatments - radiotherapy for cancers, chemotherapy for some cancers, treatment of haemophilia by clotting factors and bone marrow transplantation were used at the same rates as in the United States. Other treatments such as renal dialysis and coronary artery by-pass surgery were much less used than in the United States. There was a more uniform pattern to the intermediate innovations such as the use of intensive care beds and of whole body scanning. They are less used.

What does this suggest about the adjustment of the NHS to innovation? It suggests that the NHS will move to the higher American treatment rates where demand is clearly limited to small groups of people as with the treatment of haemophilia and bone marrow surgery. There is also a higher level of treatment where, as with radiotherapy, it can be given on an out-patient basis. The differences in the intermediate forms of innovation are of debateable significance in terms of benefit to patients. It is doubtful whether a great deal of worry and concern is generated by the fact that "The British hospital system has only one fifth to one tenth as many intensive care beds relative to population as does the United States." ⁽¹⁰⁾ The most serious problems arise with treatments which can be of benefit to large numbers of people and which require a great deal of in-patient, operating theatre and nursing time.

Some innovations emerge in fields where there already is a strong demand for existing treatments and lengthy waiting times as has been the case with orthopaedics. If the innovations involve new calls on resources their effect is to lengthen waiting times still further. The specialty then has to try to bid away resources from other specialties. Continuing regional disparities in access to specialist facilities mean not only that waiting times lengthen on average, but that there are considerable differences between regions.

What are the implications for policy and for the development of the rule on technology? At present the Department uses 0.5 per cent of spending as a guideline. This would amount to an increase of £40 million a year at 1982-83 prices. Apart from drugs, major changes in treatment methods are found only in certain parts of the NHS. In long-term care there is change in policy and in methods of treatment but there is not innovation in the sense of a sudden and radical change on the supply side. Innovation in the sense used in Health Care and its Costs is found mainly in the acute and obstetric services which accounted for about half of total spending. Total spending on those technology sensitive services which are subject to cash limits rose from £4,041 million to £4,155 million from 1978/79 to 1982/83. On the acute services which are both technology and age sensitive, it rose from £3,643 to £3,725 million, or an average of £20 million a year. On the normal rule the acute services would have needed at least another £45 million a year - assuming a 1.2 per cent increase for the sub-total - to allow for the technology and the age effects. Thus, the application of the technology rule in its lack of a link between the extra spending and those parts of the budget which are actually effected by changing technology, works in the same way as the demography rule. There is, in practice, much less than full adjustment of resources within the NHS, to the 'demography' and 'technology' problems.

Directions for Policy

There has always been a difficult balance to be struck between direction from the centre and local initiative in districts in the NHS. One instinct is to leave districts with freedom on spending - but problems of accountability provide a much more powerful pull towards central control. In this case if the collective decision is to cover the costs of aging, there must be a real question if the costs are not then fully covered. At the least, spending on age sensitive services should be evaluated separately from spending on other services in the regular regional and district reviews. Extra funds to cover the costs of aging should be spent on those services which are age sensitive and there should be discussions on how this can be achieved. The development of 'age sensitive' services - including the acute services - should be a more explicit theme in policy discussions and negotiations.

At present the technology increment does not exist as a separate fund - it is simply a notional amount in the total sum of expenditure. It seems reasonable to expect that smaller changes in technology - some of which in any case ought to be cost saving - should be financed through normal capital and revenue budgets. But it would be possible to have an innovation fund for the relatively small number of innovations which are in the small group which are clearly effective and which make very heavy demands on in-patient resources. There should be an economic evaluation and selection - carried out by a panel with local as well as central representatives.⁽¹¹⁾ There should be a selection of those innovations for which special programmes are required because of their size and degree of competition with other treatments: the additional £40-50 million a year of the technology increment should be concentrated on these. This would mean a much greater effort to get a more even balance of facilities between regions and perhaps in the short term a national waiting list bureau for a small number of treatments.

There are some changes in the NHS budgeting system which would help in financing these smaller innovations which would not be covered by the special technology fund. There are some changes which would make a great difference to the effective use of resources. The first is to give DHAs much greater freedom to plan their spending over a period of time. NHS funding should be seen not as a series of disconnected annual budgets but as a flow of potential resources. There is greater

freedom to carry over than in the past but this does not go nearly far enough. Health Authorities should have much greater freedom to defer consumption, to engage in savings and to build up balances.

Above all, the DHSS should reconsider the division between capital and revenue. There is a strong case for this division where capital and revenue spending are financed in different ways - where capital is financed by borrowing. But in the NHS case it does not matter whether a pound within the total cash limit is spent on capital or on revenue. There is also a case for central control at the beginning of a capital spending programme, as with the beginning of the hospital building programme in the early 1960s when people were not used to the idea. There is also a strong case for rationing when capital projects are lumpy - when capital spending needs to be concentrated on a few large projects. All these arguments are of declining force in the NHS. Most of the pressure to change under the existing system is from revenue to capital suggesting a greater demand for capital spending. Project size is much reduced and we are all against the very large hospital.

The new system might involve the setting of a cash limit to health districts based on a three year forward plan. They would then be free to spend this on either capital or revenue and to shift around their spending between years. In the first stages some minimum percentage - say, 5 per cent of the total - would be reserved for capital spending and some large projects would be financed separately in projects allocated to RHAs. But this would be a transitional stage. The long term efficiency arguments for giving this freedom and responsibility directly to districts are very strong.

The new system would encourage people to look at capital and manpower together and to use capital spending to save manpower. Above all it would give almost every district in the country a chance to start thinking in terms of new and more appropriate building and capital, not as a dream decades ahead, but as something to be actively worked for and started on in as little as five years. Most districts other than the worst RAWP losers would be able to save substantial new capital funds. Even before the recent crisis the regional plan for a region such as the West Midlands was predicting that its capital stock in 1990 or 2000 would be even older on average and more unsuitable than it is now.

The change could be made quite simply and without legislation by redefining capital to cover only projects of £2 million or more. The aim would be to get a more appropriate pattern of investment in new services rather than to encourage a return to capital led planning.

Finally the evidence presented here does raise certain questions about the adequacy of the NHS rate of growth of spending in real terms. There are previous policy commitments as well as pressures to improve other services, which meant that the demographic allowance was in fact spread more widely. The rules are sensible in themselves: the problem is that the adjustment has not been made in practice. These problems were present when the NHS was having a rather higher rate of growth in real terms spending than is now the case; the immediate outlook with growth in spending of 1 per cent a year in real terms at most, is for further pressure on the allowance for the costs of aging.

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