CHAPTER 8
THE MEASUREMENT AND CONTROL OF PUBLIC EXPENDITURE

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This memorandum was written in November 1973 *as background material for the Select Committee on Public Expenditure. It is published here for the first time because of recent interest in the problem of how to combine medium term planning of resource use in the public sector with adequate financial control. The author is grateful to Mr Sam Brittan who read the original draft and made many valuable criticisms.*

Summary

The main purpose of this chapter is to suggest that the attempt to control public expenditure programmes in terms of 'constant price' outlays as defined for the purpose of measuring the 'real' national income is misguided; and that the correct way to control it, to put things simply (but not quite accurately), is in terms of ordinary not 'funny' money.[1] We first discuss why and how an attempt was made to set up a constant price system using national income concepts.

General background[2]

The modern system of public expenditure planning and control (PESC) was generated by the famous Plowden recommendation that 'decisions involving substantial future expenditure should always be taken in the light of surveys of public expenditure as a whole, over a period of years, and in relation to the prospective resources'.[3] It was essentially because the availability of resources was thought to be appropriately measured by the size of the 'real' GDP that the implementation of this recommendation seemed to require that public expenditure should be measured in real terms using, at least in principle, the national income concept of what 'real terms' means. But the use of constant prices did perform one function which will be an essential component of *any* sensible system for the medium and long run planning of expenditure; it insulated public expenditure from variations in the *general* rate of cost inflation. It must be so insulated; if public expenditure plans for five years were really framed in terms of *completely* unfunny money it would be possible for the private sector to bid real resources away from the public sector by paying themselves more money; also variations in the rate of inflation (possibly generated by external forces outside our control) could throw the huge construction and manpower programmes into confusion.

Before PESC, control was exercised in the main through the Budget Estimates and on a year by year basis; neither the information nor the expertise existed to make possible the conscious planning of public expenditure in the medium term and its integration with economic management.

In the implementation of the Plowden recommendation it was assumed, since the national income accounts were used for measurement and control of the economy as a whole, that national income concepts should be used for the measurement, control and planning of public expenditure. The major changes were:

(a) To reclassify expenditure on a functional basis (education, health, etc.). Classification by spending authority and input category, essential for accountability in the narrow sense, became, for planning purposes, of secondary importance, but all public expenditure, not only that falling on Estimates, was brought into the total.

(b) To break down expenditure, both in total and on each functional block, into economic categories (expenditure on goods and services, current transfers, etc.) which harmonised with the national income classification.

(c) To set out every programme for each of the five forthcoming years measured in real terms, using as described above, the national income concept of what 'real terms' means. This was seen as a precondition for comparing the proposed preemption of real resources by the public sector with the total availability of resources in the economy as a whole.

Outline

The detailed contentions of this chapter are as follows:

(a) The system of information relating to prices which would enable programmes and their component parts (projections and outturn) to be expressed in real terms according to national income definitions does not yet exist. The building of such a system would involve a great deal of effort; and the results would have little meaning as measures of the *output* of the various categories of expenditure.

(b) The absence of price information obviously implies that the present system of control is not in practice using the national income concept of expenditure in real terms; control procedures rely instead on their own conventions derived from traditional procedures underlying budget estimates.

[1] Essentially the same suggestion was recently made by Sir Richard Clarke in his paper 'The long-term planning of taxation', in *Taxation Policy*, edited by Crick and Robson, Penguin, 1973. Sir Richard pointed out that one of the main advantages would be that then (and only then) it would be possible to consider taxation simultaneously with expenditure. He referred to the serious technical problems which would be encountered if one were to plan in money terms over several years in an inflationary world. This chapter attempts to deal with some of these problems.

[2] For a further account of the position in 1961 and the problems which had to be solved see the author's memorandum 'Measurement, forecasting and control of public expenditure', Third Report from the Expenditure Committee Session 1970-71, HC. 549, pp. 138-44.

[3] *Control of Public Expenditure*, Cmnd. 1432, July 1961, para. 7.

A very substantial change in existing control and monitoring procedures would be necessary if the national income concepts were genuinely to be used in an operational context.

(c) But there are a number of reasons why control in terms of real expenditure (using national income concepts) is inappropriate anyway. One is that expenditure measured at base year prices does not measure opportunity cost in any year but the base year. Furthermore the government's whole fiscal position, receipts, as well as outlays, cannot be represented in real terms on one table, such as would enable a balance between the two sides of the account to be struck, since the expenditure deflator cannot be meaningfully divided into receipts. Another objection is that if planning were in 'real terms' only, no control would be exercised over pay and prices.

(d) Finally it will be suggested that there is a way in which all these problems can simultaneously and fairly simply be dealt with.

The absence of comprehensive price information

In an earlier memorandum,[4] it was pointed out that 'the price information which as a matter of fact is, and has for many years been, used to deflate public expenditure to constant (1963) prices in the national income accounts is completely inadequate and inappropriate for the purpose of revaluing and verifying the survey projections, if only because it is not nearly detailed enough. For instance

(a) It has for many years been the practice of the CSO to deflate all non-housing fixed investment in construction (e.g. private manufacturing, roads, schools, hospitals or churches) by one index prepared by the Department of the Environment. Even if the very considerable uncertainties connected with this particular index as a general measure of construction costs did not exist, there is every reason to suppose that it would be inappropriate as a deflator for an individual public expenditure programme such as school, road or hospital construction.

(b) More generally, the national income system does not provide deflators for individual functional programmes, with the sole exception of military defence. (It does, however, yield deflators for the consumption components of education and national health; constant price expenditure series for these series being shown for example, in the 1970 Blue Book, Table 14). The price indices used to deflate military defence expenditure in the national income system are probably not nearly detailed enough to serve for the control of detailed categories.[5]

(c) National income methodology and practice yield no deflators at all, even in aggregate, for transfer payments by the public sector (e.g. national insurance benefits and debt interest) which are projected nevertheless in the surveys "at constant prices".'

There is no reason why accurate price deflators for each public expenditure programme should not be compiled, but it must be recognised that it would be a very long business to undertake this. It would be necessary to choose some set of conventions for defining 'prices' over the whole range of public expenditure and then to collect new information on a very extensive scale on how the chosen indicators are moving. (Note that the results of such an exercise would not be to produce measures of the *output* of the programmes of any value whatever. The 'price' of a road, school, hospital or military aircraft is going necessarily to be so conventional and arbitrary that the resulting time series for expenditure in real terms cannot convey how much more or less of something is being provided in any welfare sense.)

Treatment of prices in the present system of control

Notwithstanding the difficulties stated in the previous section, the annual White Papers do show projections and latterly a record of the past for each programme at constant 'survey' prices. Each set of 'survey' prices is however different from every other one and the link between them, and also the link between survey prices and 1963 (or now 1970) prices used for national income purposes, is left implicit – partly because these links are intrinsically indefinite. To understand this, it is necessary to go into the traditional procedures underlying the preparation of Budget Estimates.

The Budget Estimates are the outcome of a process of negotiation between the Treasury and departments which, having been voted by Parliament, constitute departments' legal authority for spending. These Estimates represent departments' expenditure ceilings for the forthcoming year costed on the assumption that pay and price levels do not change from their levels on the date the negotiation is concluded, typically around October preceding the year in question; the only exception to this is that where an increase in pay, to take effect later, has already been actually negotiated, this will be taken into account in the costings. Additional sums of money cannot be spent unless Supplementary Estimates are voted by Parliament.

There are a number of points to note at this stage:

(a) Whereas it is generally accepted that pay and prices actually paid will be above the 'autumn' levels used in the costings, it is not a foregone conclusion that supplementaries will automatically be agreed to the full extent when pay or prices rise above these levels. In other words, as pay or prices rise, the process of scrutiny continues and departments may to some extent be expected to respond by cutting the real scale of their operations below that on which the costing is based. The Budget Estimates are thus an intermediate stage in a bargaining process and do not represent a forecast of what will happen in real terms. This means that when the appropriation accounts appear, showing how much money has actually been spent (and naturally these will typically exceed the Estimates, if only for pay and price reasons) it is impossible to divide the difference between estimate and outturn precisely between, on the one hand, a discrepancy in pay and prices and, on the other, one in real expenditure.

[4] 'Measurement, forecasting and control', para. 14.

[5] I want to emphasise at once that the expenditures deflated by such indices, if they did exist, would not measure the 'output' of the programme in any useful sense whatever. Indeed a central contention will be that conventional constant price expenditure measures *neither* output *nor* cost.

(b) The estimating convention that the figures represent sums of money which would be spent if pay and prices change no further, means that for some programmes the Estimates cannot be said to be at one set of pay and prices. This is notoriously the case with construction programmes, where Estimates represent a mixture of outlays on contracts already let (and therefore at prices of earlier periods) and on contracts to be let in future (costed at today's prices). Under this estimating convention a proportion of expenditure, which increases through time, will be costed at today's prices and therefore an element of price increase through the estimating period is built into the forecast. But nor can the pay and prices of other programmes be said to belong to one period; the pay and prices in question will belong to a mixture of dates depending on the particular circumstances of each set of negotiations. And the dates will not be the same each year; i.e. it cannot be taken that the pay and prices on which one set of Estimates is based is separated by one year from those of the previous or the following set.

The procedures and conventions underlying Budget Estimates are governed by the practical necessity that the Treasury should keep control almost on a day to day basis over the sums of money which are paid out of the Exchequer. The Estimates are, in the event, in a continuous process of modification for many different reasons – needs may change, policies may change, prices will certainly change, and on top of everything else, there will be estimating 'errors'. In theory it would be possible for a systematic record to be kept of all the changes which occur between Estimates for a given year and appropriation accounts for that year, classified under each of the headings listed in the previous sentence. In practice this is not done, and the initial estimating process is probably not sufficiently rigorous for it to be possible.

Budget Estimates are solely concernedwith the forthcoming year. When autumn comes round again a new set of Estimates is negotiated for the following year, using again the convention that pay and prices do not move compared with the level *then* reached. It is a question at this stage of a new world; new pay and prices, new policies and new needs. These are now considered on their merits without any rigorous relationship being established between this new world and that negotiated for the previous year one year before. *It is most important for the development of the argument later on to note the character of the lacuna at this point.* Considering each year separately from every other, and keeping the Estimates for each individual year under close supervision and allowing for continuous modification as that year progresses, the Treasury and spending departments with their highly specialised knowledge of what is going on from day to day can keep control via the critical scrutiny of piecemeal adjustments without the need for a running record of price changes and without the whole process necessarily throwing up this information as a by-product. The whole system has been able to proceed without the need to ask or answer the question 'How much precisely does the price basis of this year's Estimates differ from that of last year's?'

When the PESC system of information, planning and control was introduced, it did not supersede the Estimates, which continued to form the legal authority for central government spending. The PESC system therefore had to fit in with the Estimates system. Thus, while all public expenditure was brought into the picture and the future considered over a period of several years, the Budget Estimates themselves always constituted the appropriate components of Year 1 of the PESC survey. (This has always been so, though before the new information about the Estimates element of public expenditure was made available, it was not possible for the outsider to identify the Estimates in the PESC functional blocks). This is the reason why PESC estimates are always expressed at the (constant) '*survey* prices' of the year in question; '1973 survey prices' means the pay and prices used to cost the 1973-4 Budget Estimates and refers *very roughly* to October/November 1972; the price basis of public expenditure not coming into the Estimates was the same in principle but probably a little vaguer, even, in practice.

It is hoped that this description will elucidate how it is that 'survey prices' have come to form the basis of PESC projections; the system has been designed around the need to preserve the old Estimates procedure intact. And it should be clear why it is that each PESC survey is expressed at a different set of prices, and also why there are real difficulties in relating each of these to any other and to the national income price basis.

In the absence of the price information which would enable the PESC system to work precisely as it is supposed to work, the expedient has been adopted of asking departments themselves to supply estimates at survey time of the previous year's estimates and of estimated outturn for the previous year, all measured at this year's survey prices, thereby giving *by implication* all the required price links and enabling, *in principle*, a cumulative picture to be built up of how every PESC compares with every other one and all of them with outturn as this unfolds. Not surprisingly, as the detailed price information does not exist in a systematic form, as the conventions of measurement differ between departments and national income accountants and as, finally, the distinction between price and quantity is not in the bargaining context an entirely sharp one anyway (see para. (a), col. 2, p. 59 it is not surprising that the cumulative record built up in this way does not tally, when aggregated into broad economic categories, with the record which appears in the national income accounts, and cannot be used to verify previous plans better than approximately. Thus in a very real sense it is still impossible to measure the extent to which plans get modified from one year to the next and how precisely they get fulfilled in the end.[6]

This account should also make it clear just now much of an upheaval would be necessary to change the system. First, immense amounts of new information would have to be collected about the pay and prices appropriate to each functional subheading – old peoples' homes, primary schools, the police force,

[6]For a comparison of the sources of information and conventions of measurement in respectively the national income and PESC systems, see Godley, 'Measurement, forecasting and control'.

etc. Then (something which is even harder to imagine), the process of control and bargaining would have to be transformed. To be given, as at present, a ceiling in terms of money which may be spent is something everyone can understand. But a ceiling in terms of money *at constant prices* is a new animal. A new range of issues would be raised of a contentious and possibly insoluble kind; it is only necessary to think of the difficulties involved in defining and measuring the price of a road or hospital and then controlling expenditure in terms of such a concept. Moreover it would take pay and prices out of the control process.

The absence of programme deflators means, of course, that the historical series for expenditure in real terms on individual functional blocks do not exist.[7] And this in turn means that very little research on how the whole public expenditure system functions has yet been possible. With 'real' expenditure series it would be possible to discover something about the key functional relationships inside the system; for instance, knowing about the change in real expenditure on schools, these resources could be apportioned between changes in the (age weighted) number of children at school and changes in the real resources used per child. With this information one could go on to appraise projections into the future in quite a new way; for instance, with population as well as real expenditure projections, one could discover whether real expenditure *per child*, and therefore presumptively the quality of service, was going to rise faster or slower than in the past.

National income concepts inappropriate

The justification for planning in terms of expenditure 'at constant prices' is that only in this way can preemption of real resources by the public sector be measured. However, since under national income procedures the average price of goods and services bought by the government rises faster than do other prices (on average), the usual measure of public expenditure 'at constant prices' progressively understates its opportunity cost in terms of the personal consumption or private investment which has to be forgone. Suppose, for instance, that the public sector employed directly and indirectly a constant proportion of the country's labour force. In this case the national income accounts would show a progressive fall in the share of public in total expenditure if both were measured 'in real terms'; this despite the fact that the share of expenditure in money terms would be approximately constant, as, in our contention (also in accordance with intuition), would be the relevant share of real resources preempted.

This defect of the national income conventions for the purpose of measuring real resource use is of course precisely recognised by the Treasury when it adds the 'relative price effect' (RPE) to the total of public expenditure and, in one of the main tables in the White Paper, to the individual broad functional categories. The RPE is defined as an additional sum corresponding to the forecast increase in the 'price' of the programme in question over and above the average of all prices – this latter being taken as the GDP deflator. Thus projections at constant prices including RPE are equal to actual money outlays first deflated by 'own' price then partially reflated again by the ratio of 'own' to GDP price; this is obviously identically the same as money outlays deflated in a single, simple, step by the GDP deflator.

Towards a new solution

But if it is accepted, as the Treasury by implication accepts, that money outlay deflated by the GDP deflator is the proper measure of real resource use, then there is no need to assemble a new system of information about programme deflators after all. If one gets a better measure of opportunity cost by using a deflator compiled by subtracting from 'own' price the excess of 'own' over GDP price change, then compilation of 'own' price information is unnecessary; it does not yield any meaningful measure of output, and a better measure of *cost* is obtained by dividing straight off by the GDP deflator, which we have already.

The use of a new convention whereby real resource use is measured by deflating money expenditures by the GDP deflator, i.e. correcting by a general measure of inflation in the economy, apart from yielding an intrinsically better measure of opportunity cost, would kill *four* other birds with one stone.

(a) A historical record of the real resource preemption of each programme (in any degree of detail which may be required) can be immediately constructed from past GDP deflators. It would be unnecessary to carry out the immensely long and difficult job of reconstructing the history of the price of goods and services purchased under each functional heading. Research could then proceed immediately into the functional relationships referred to briefly above.

(b) The new convention would give a precise and comprehensible rule for shifting any set of projections from one price basis to another, so filling the lacuna referred to above on p. 60. Thus any change in the survey estimate of expenditure on, say, law and order in, say, 1974/5 between the 1972 survey and the 1973 survey which exceeded the rise in the GDP deflator between the two surveys would require explanation in terms of changed policies, changed needs, estimating errors, or, most important, a larger than average increase in pay or prices.

(c) The use of GDP deflators to update programmes from one year to the next would bring pay and prices into the PESC system of control, from which it is *in principle* absent at the moment. If the starting point for the annual renegotiation of programmes is last year's projections updated by the GDP deflator, and if pay in the programme concerned has risen more than average pay in the country as a whole, the initial presumption will be that as a result of this fewer employees will be permitted than originally envisaged or that they will be paid relatively less.

(d) The same convention can meaningfully be applied to tax and other receipts by the public sector; we shall thus be able to present both sides of the public

[7]Except (as already mentioned) for one or two very broad categories, e.g. defence.

sector accounts, for both past and future, on one sheet of paper in a way that enables a meaningful balance between the two to be struck. This indeed was precisely the intention behind the presentation of the government accounts suggested in a Green Paper[8] and actually adopted in Table 1.2 of the December 1969 Public Expenditure White Paper (Cmnd. 4234). The defect of this presentation, however, was that the receipts were not calculated on a full (or given) employment basis and therefore the balances did not give a meaningful measure of fiscal leverage. So long as receipts are calculated for past and future on a full employment basis, together with an appropriate economic classification of transactions, so that, in particular, capital transfers are separated out, the balances become important indicators of fiscal leverage. Moreover the implication of the public expenditure plans for required *taxation* will be revealed.[9] It has hitherto been a major source of obscurity, noted, for instance, by Sir Richard Clarke,[10] that the standard presentation in medium-term assessment work has focused on the growth of 'real' expenditure relative to that of real GNP.

Problems of implementation

The case for adopting a new way of measuring the cost of public expenditure has so far been proposed principally on the grounds that programme deflators do not at present exist and that they would be inappropriate as measures of opportunity cost (and of output) if they did. It has also been suggested that the measurement problem can be solved very simply if the usual national income convention for deflation is explicitly rejected. But the solution of the problem from a purely measurement point of view still leaves other problems relating to the actual, practical operation of control.

Before giving a brief description of the most important of these problems, I would like to suggest that it is in practice inconceivable that the system of statistics used for and generated by the control operation can ever *precisely* be integrated with that for measuring and controlling the economy as a whole. In the control context one is nearly always dealing with sums of money; it is these which are paid out of the Exchequer and for the proper appropriation of which accounting officers are legally accountable. There will always be some lacuna between this world and the conventional world of the national income accounts. Nevertheless the only rational way to determine the overall scale of public expenditure is indeed, as Plowden originally recommended, by considering it in relation to the total availability of resources as conventionally measured. The best thing to hope for is *an approximation* which relates the two systems within one framework.

The principal defect of the present control system is that each survey is essentially disjointed from every other survey and from the central statistical system; the links between them are left implicit and it is nobody's responsibility to spot or probe significant implausibilities which may lurk there.

To implement the proposed system in the context of control with the minimum of disruption to the existing procedures two changes need to be made. First, it is necessary that costings through the planning period should include the RPE appropriate to each programme and subprogramme. Departments and other spending authorities will have to learn how much, if pay for which they are responsible keeps pace with pay elsewhere, the 'price' of all the goods and services they buy will change relative to other prices. The following is a simple way of carrying out costings which would give approximately the right results. Each subprogramme would be divided into the direct cost of labour on the one hand and other goods and services on the other, and expenditure would be costed under these two headings according to the existing procedures; in other words it would be assumed for direct labour that rates of pay, and for goods and services that prices, do not change. Then the extent to which *prima facie* the pay bill should be uprated from one year to the next is the *national average* increase in pay over the period in question, while the uprating of the 'goods' part of the programme would (again *prima facie*) be equal to the rise in the GDP deflator. These procedures will of course only give the right answers[11] so long as pay rates for the service in question rise at the same rate as pay on average and the prices of goods rise at the same rate as prices on average. In the cases where divergences occurred, however (for instance if it were decided that public service pay *should* rise at a faster or slower rate over any particular period than the national average), then it would be necessary to identify these and make explicit the merits of the case. The use of an external standard (the national average increase in pay or other prices) should indeed concentrate a department's attention on the pay rates and prices it pays in a new kind of way and might prove highly beneficial.

The second necessary change would be to specify the link between the price basis of the projections and the GDP deflator for some recent[12] period, the change between the two being defined to include the RPE.

With these two modifications to the existing estimating procedure the two whole systems of measurement are brought within a single framework. Each survey is no longer intrinsically disjointed from every other one and from the national income system. On the contrary it will become possible to verify surveys in terms of the national income system; and the

[8] *Public expenditure: a new presentation*, Cmnd. 4017, April 1969.

[9] We ignore here a problem which in practice is not of immense importance – that public sector receipts and, indeed, some expenditure (e.g. debt interest) 'at constant prices' will itself be affected by the rate ot price increase, because of fiscal drag with respect to price changes.

[10] 'The long-term planning of taxation', p. 154, 'this approach has led nowhere in the past'.

[11] The answer will be 'right' in the sense that a programme which in constant prices including RPE rises x% faster or slower than real GDP, will be funded by exactly the right amount to make it rise in *money* terms x% faster or slower than *money* GDP.

[12] At present a link is given to a *forecast* outturn price. But this does not meet the case, because discrepancies between forecast and outturn cannot be analysed into prices on the one hand and volumes on the other.

change from one period to the next in the GDP deflator derived from the national income accounts will provide a rule whereby each survey is, at least *prima facie*, related to every other one.

One objection which may be raised is that more weight will be placed on the artefact '*GDP deflator*', itself so arbitrary and subject to revision, than this was ever meant to bear if it is to provide a rule, coming from outside the control system, which converts last year's projections into this year's. The answer to this is that it could never be used tyrannically or inflexibly. Its whole virtue would be that it *does* come from outside the control system, establishing a presumption, no more, as to the magnitude of change which is to be observed in the estimates given for a given future year between one survey and the next. But there is all the difference in a bargaining or probing context between having and not having such a presumption to start the argument off with.