

the new economy

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1. introduction

To create new freedoms, to avert the bitterness of inequality, to feed the hungry—such must be the objectives of economic policy. The very passions which impose these objectives should drive people to seek the means by which they can be attained. Yet it is surprising how little attention has been paid by the Labour Party to this aspect of policy—to the industrial and economic means of attaining social ends—particularly since it is a characteristic of socialist belief that the nature of society depends on how it organises production.

That this is no obsolete rudimentary appendage of socialism was shown by the success of the Labour Party in identifying itself with modernisation, the pursuit of science, and the application of science to government, before the election. This identification was open to any party and in part it was just an able political move by Harold Wilson. But it was an identification which was needed by the Labour Party and which was natural to it. It was needed first to modify the cloth cap image of the Party which put off the bright young housewives on their bright new estates. And the substance and not merely the image was needed to give the Labour Party the means of carrying out its social programmes. The identification was made easier by the choice of a leader in the Conservative Party whose most obvious characteristic was not a passion to modernise.

Despite these immediate and perhaps superficial advantages, there was something deeper in the response it evoked. This arose from the historic and fundamental concern of the Labour Party with the rational organisation of production. Once touched upon, this chord cannot easily be subdued. The other factors may change: images may be destroyed, administratively easier nostrums can be tried for economic difficulties without their shortcomings becoming apparent for a year or two. The Conservatives could find a new leader. But the deeper note is not easily forgotten.

In fact, the theme of modernisation played no part on the hustings—it evoked

no response on the pavements and the doorsteps through the shrill oversimplifications of the rising cost of living and the bomb. Only when the shouting had died down, and the Government had got over the first shocks of office, did it realise with horror the ease, almost the inevitability, of slipping into the oscillation between vacuous exhortation and trifling interventions which it had so ridiculed from the other side of the House. Yet the theme of scientific government is still there, like a tune in the ground bass ready to swell up through the lighter airs. Without it there will be no music, just tinkling.

To other parties the organisation of production is a matter of technique. To the Labour Party it is a fundamental doctrine which goes down to the rights of the individual. The man running a plant at half output on low bonus rates because there is not the demand for his product, and the housewife paying an extra 1d a packet, is entitled to know why this should be so.

A positive effort is needed to create working conditions which make sense to the ordinary man. Stupidities in these conditions, whether it is unemployment in the face of manifold needs, the degradation of skill and undermining of the sense of achievement, or the pauperisation of old people to pay more to the young and to investors in the name of incentives, cannot be excused on an appeal to supposed high economic principle. These principles have to be built up stage by stage from the individual, through the enterprise to the economy as a whole, and constantly checked to see if they remain valid. They are not hewn on tablets of stone.

This would indeed be a barren attitude if all attempts to organise production were foredoomed to failure, if no improvement on a rickety price mechanism were possible as a means of appealing to what makes sense to the mass of ordinary individuals. But industry is not such a hostile environment, if we consider what is involved and set about carrying it out with imagination, patience and vigour.

2. planning methods today

There are two broad spheres of economic planning in which the Government is active. It exercises overall control of purchasing power or the pressure of demand, to try to maintain full employment without inflation, and to maintain the balance of overseas payments. Secondly, it directly controls taxation and its own spending, and has a great influence on activity in the public sector as a whole, which includes the nationalised industries and local authorities.

While there is still a rather quaint cloak and dagger atmosphere hiding the actual taking of decisions, the arguments used and the process of decision have been well described in a succession of public documents, published in recent years, and no more than an outline need be given here.

The "Keynesian revolution" amounted to persuading the Government that it could and should control the pressure of demand in the economy, and that unless it did so there was no reason why the economy would automatically adjust itself to maintain full employment. In order to control the pressure of demand it was necessary to define it, measure and predict it.

This gave rise to the development of the concepts of national income and expenditure and the compilation of the first national income and expenditure tables to control the wartime economy in Britain in 1941. They have been published annually since 1941 and quarterly since 1957.

the crucial importance of forecasting

The method of forecasting is crucial, because it limits both the choice of objectives and the choice of immediate action. If we have no idea as to what acceptable acts of policy would move us towards an objective, then we cannot pursue it. For example, if we wish to stop the drift of population to the south and our forecasting method takes no account of the causes and effects of population movements, then we cannot

have a serious policy to prevent drift. We may make some gestures but so long as the objective and the means to it do not enter into the basic forecasting process, the action taken is likely to be inadequate.

Any act of policy has short and long term consequences. If the long term consequences are unfavourable it is always possible to argue that it will be possible to take corrective action before we meet them. On the other hand, if the long term consequences are what is desired, and the price is paid in the short term, it is always possible to argue we cannot afford it at present. These arguments have their limitations. But they mean in practice that having looked at the short and long term consequences the final decision is likely to hinge, rightly or wrongly, on the balance of needs and resources in the short term. Short term forecasting is therefore the key activity in economic planning.

PRESSURE OF DEMAND

The key concept is the pressure of demand for goods and services. The demand forecast is compared with the output thought to be available. All the sophistication goes into forecasting the demand, since it is assumed that there is no direct method of estimating the output available. It is assumed that if at two different dates there is the same level of unemployment, then after allowing for time lags there is the same level of unused productive capacity available for use.

From this it has been deduced from past experience that a change of 50,000 in the number unemployed (0.2 per cent of the number employed) produces a change of one per cent in output. The Treasury has clearly been influenced by Professor F. W. Paish's *Studies in an inflationary economy*, if not by his conclusions. This approach does not, however, distinguish between unemployment in London or Durham, or consider whether the extra production is of apples in Evesham or bungalows in Brighton.

If demand seems likely to be excessive, producing an excessive demand for labour and imports, then the government takes steps to reduce it, either by cutting plans for public expenditure or by increasing taxation. The calculation gives no indication for example as to whether an excessive demand for building labour in London is not being countered by a cut in steel production and a rise in unemployment in Scotland, which, far from reducing the pressure of demand in London, increases it by encouraging migration.

SHORT TERM FORECASTING

The forecasting process is carried out by a small team of three or four economists and statisticians three times a year. It gives estimates for each quarter for the next year to 18 months in preparation for the Budget and any intermediate adjustments of demand the government may have to make.

the treasury process

The logical block diagram on pages 20-21 gives an outline of the forecasting process described by the Treasury (*Techniques of Economic Forecasting*, OECD, 1965). The full details exist only in the minds of the small forecasting team, and no doubt even they do not always know what other government departments and other sources have been up to with their figures before sending them to the Treasury and the Central Statistical Office.

Producing a coherent picture of the future is a relatively simple matter of successively adjusting individual estimates until they fit together. It is more difficult to produce a coherent picture of the present as a starting point for the prediction. There are different ways of estimating gross national product—from income data, from expenditure data, and from output data—and they seldom agree. A view has to be taken on what has in fact been happening and this is often more difficult than making a prophecy.

Recent past trends and whatever information is available about future plans and prospects (for example, for investment, exports and public authorities consumption) are used to give one by one estimates of those variables, described by economists as exogenous, which in the short term tend to follow their own course independently of what is going on in the economy as a whole. It is then a matter of filling in the rest of the picture so that it is consistent.

The argument, familiar to mathematicians as the iterative method of solving simultaneous equations, consist of going round the broad loop on the diagram from "Pressure of demand" to "Gross domestic product" and back. After going round the loop a second estimate of output will probably differ from the first, so a further round of the same argument is carried out producing modified estimates, and this is repeated once or twice until the picture balances. In this state the amount of money assumed to be spent, for example, equals the amount of money assumed to be earned, after allowing for assumed saving and borrowing; all other such accounts are also made to balance.

The relationships used in these arguments are drawn from past experience or theoretical considerations, but up to the present the inference from past experience has seldom been drawn by precise mathematical techniques.

other forecasting processes

A similar forecasting process is carried out as an independent check on the work done in the Treasury by the National Institute of Economic and Social Research and has been published regularly in the *Economic Review* since 1959. The methods used and the degree of success achieved in the early years have been described by R. R. Neild and E. A. Shirley in "Economic Review: an assessment of forecasts, 1959-60" (*Economic Review*, May 1961). It is always the basis of much press comment on the state of the economy. The Treasury itself is coy about publishing its own forecasts,

for fear of provoking financial crises or appearing to condone inflation, though it has access to better information than the National Institute and thinks its methods more highly developed. This does not stop the Treasury complaining if it thinks the National Institute has got an unnecessarily disturbing answer, and the initiated can sometimes recognise in the Chancellor's remarks an emaciated verbal approximation to the Treasury's quantitative forecast.

An entirely mathematical short term aggregated model of the British economy was produced at Oxford (L. R. Klein, R. J. Ball, A. Hazlewood, and P. Vandome, *An econometric model of the United Kingdom*, Basil Blackwell 1961) relying heavily on relationships between economic variables derived from past experience by formal mathematical methods (regressions). The approach was relatively crude, and the model did not predict well, but the methods have since been much developed by L. R. Klein in "The Social Science Research Council econometric model of the United States," (*Econometric analysis for economic planning*, Colston Papers 16, Butterworths, 1964), in which he co-ordinated the work of some 150 individual economists.

Having been for a long time half hearted about the use of mathematical methods in short term forecasting, the Treasury is now feeling its way in using such methods to examine individual relationships which are then put together by the established manual methods (W. A. H. Godley and J. R. Shepherd, "Long term growth and short term policy," *Economic Review*, August 1964, W. A. H. Godley and D. A. Rowe, "Retail and consumer prices, 1955-63," *Economic Review*, November 1964). The description of the economy used is still the same but informal "judgement" is being replaced by formal methods in some individual relationships.

The results are particularly interesting in that not only do they give a mathematical expression for particular relationships, but they suggest relationships which had not been considered before and which on

examination by the old methods seem at least as plausible as the old relationships, if not more so.

the danger of past experience

There is danger in relying too heavily on relationships derived from past experience, whether informally or by formal mathematical argument. While the particular relationship discovered may on past experience show only a one in twenty chance of being wrong, if many such hypothetical relationships are examined and all are in fact meaningless, it is certain that on past evidence some will appear meaningful. The American who forecast the results of Presidential elections by tossing several hundred coins, and keeping for the next election only those which got the answer right, was making this mistake.

This danger is well understood, particularly in the Treasury, and can only be avoided by examining the mechanism of the supposed relationship. There is certainly no escape in clinging to intuitive methods of forecasting which suffer from the same hazards, and the additional ones of leaving their presuppositions undefined.

In an introduction to *Techniques of Economic Forecasting* (OECD, 1965), C. W. McMahon discusses the methods used by Canada, France, the Netherlands, Sweden, the United Kingdom and the United States, their logic and usefulness. He argues strongly for better statistics, for greater effort on forecasting and research in methods, for the publication of the forecasts (Canada and the United Kingdom alone of these countries do not publish their forecasts), for the international collation of forecasts of exports, and for more consideration of monetary flows.

CONTROLLING THE PRESSURE OF DEMAND

How well does the logic of planning—description, measurement, prediction, criterion, action—describe the present pro-

cesses by which the government regulates national demand (see appendix)?

In the regulation of demand the description adopted is macro-economic—that is, it treats the economy as a whole, using variables like national production and imports. This contrasts with a micro-economic description which would handle individual firms or products. Having adopted a macro-economic description with such a high degree of aggregation or abstraction, the measurement problem is acute. The description is only given flesh by the method of measurement, and many arbitrary judgements are involved, for example, whether works canteen meals are really consumer expenditure or production costs.

Different methods of measurement give different values for the same concept. When this happens in the physical sciences, after a period in which the methods of measurement are re-examined, the concept itself is questioned, modified and even abandoned. Thus the attempt to measure phlogiston led to the abandonment of the phlogiston theory of combustion. On the other hand, the theory of relativity has not led to the use of relativistic ideas where Newtonian ideas are still an adequate approximation. An open minded attitude to concepts is required.

testing the forecasts

It is when we come to prediction in the process of regulating demand that the description and measurement methods are really put to the test. Because the Treasury's forecasts have not been published, their accuracy cannot be publicly checked after the event, but J. C. R. Dow has carried out a painstaking review of both what is published about forecasting and of the whole process of the regulation of demand (*The management of the British economy 1945-60*, Cambridge University Press, 1964). It is only after the last stages of control action in the light of a criterion that the forecasts are put publicly to the test. The criterion has been broadly full employment without

inflation, with the emphasis on the former. As it has been achieved with increasing confidence within the margin of error previously accepted, so the margin of unemployment considered acceptable has narrowed, and growth has become a more important objective. The failure to achieve these more ambitious objectives has been the commonplace of politics for the past five years.

Within the scope of the management of demand, technical criticism has concentrated first on the measurements, and secondly on the kind of controls and the way they are used.

The statistics are said to be late, inaccurate and incomplete, and are considered fair game for any economist. Yet as methods of measurement become more powerful, so the concepts they are trying to measure come to seem more artificial and the relationships postulated between them an inadequate way of describing what is going on.

differing opinions

On the use of controls, one school of thought led by Paish has argued that the pressure of demand has been kept too high, leading to an atmosphere in which excessive wage increases are granted. These lead to the inflation of costs, uncompetitive exports, and a crisis in the balance of payments which has to be cured by deflation, even below the level of employment which could have been maintained had people not been over ambitious.

Another school of thought argues that the Government has been over hasty in cutting demand when production is on the increase. Inevitably during this phase imports will rise as goods in the pipeline increase, and this extra demand which will not last should be carried on the reserves, thus enabling expansion to get properly under way. To do this it is necessary to maintain a rather longer perspective and attach more importance to growth. This led to the NEDC plans for growth.

Neither school of thought has gone deep enough. While there have been criticisms of measurement, criteria and policy, the more fundamental question is whether we are using the right description of the economy—the right general concepts; whether we are trying to measure, predict and control the right things.

TREASURY CONTROL OF EXPENDITURE

Through the overall assessment of the pressure of demand, the government arrives at the balance that has to be struck in determining its own expenditure and the taxation it will need. These are not necessarily equal. If demand is rising excessively elsewhere in the economy, revenue will have to increase more than expenditure, and conversely: that is the burden of what Keynes had to say. As far as public announcements go, plans for expenditure are announced first in the estimates submitted to Parliament by the Treasury in the weeks before the Budget in the spring. The Budget then fixes the level of taxation. But, of course, both processes go on simultaneously in Whitehall during the autumn and winter and indeed, all the year round.

political pressures

The pressures generating public expenditure are political. In any one field they are brought to bear through elections, Parliament, local government, the reports of official committees, the press, and the representations of interested bodies. They act on the Minister and Ministry responsible.

Within each Ministerial department are shaped in consequence expenditure proposals which have to be discussed with the Treasury before they are submitted to the Cabinet or its committees: indeed this applies to any memorandum in which any financial issue is involved.

This does not mean that the Treasury is all powerful. An effective departmental Minister can carry much weight in Cabinet. In the last government Lord Eccles

in education and Mr. Marples in transport were most effective in departmental matters.

The form of proposal made by departments varies enormously, including the nation wide programmes for school and hospital building; grants to local authorities; negotiations on pay for teachers, doctors and all public employees; the investment plans of the nationalised industries; pension rate changes; and advanced defence projects.

the justification of expenditure

Up to the election, cost benefit analyses were beginning to appear in the justification of individual expenditure proposals (over twenty years after the development of these ideas in the Second World War). The foundations of fact on which to build policies were beginning to be strengthened, most notably in higher education. The nationalised industries and the Post Office were working to clearer financial criteria. The nature of the economic resources used—imports, skilled manpower, construction resources—were being examined more closely; and questions were being asked about the contribution of the proposals to the economy.

It is interesting that the fields in which the most sophisticated arguments have been used for the justification of major expenditure programmes are higher education and roads—matters of most interest to those already best able to look after themselves. The problems of housing and national insurance are by comparison uncharted mysteries, which the former government may have preferred not to know about.

Room has to be made for the total of the departmental programmes within the national resources, and this is the job of the Treasury. Treasury control of expenditure has been much discussed in recent years, and the methods have been developing steadily ("Treasury control of expenditure," *Select Committee on Estimates*, sixth report, 1957-58, *Control of public expenditure*, Cmnd 1432, 1961).

Surveys of public expenditure for five years ahead have been made each year since 1961, as a result of recommendations by the Estimates and Plowden Committees. They have been found necessary first, to make sure that decisions in different fields are not taken piecemeal and a coherent system of priorities is observed; secondly, to see that expenditure in future years as well as expenditure in the current year is taken into consideration in policy decisions which imply expenditure over many years; thirdly, to enable long programmes to be carried out without interruptions which diminish their efficiency; and fourthly, to see that resources will be available to cover commitments when the commitments are undertaken.

The time spans of decisions vary. For example, the effect of a change in pension rates will not only have a permanent effect on payments, but the cost will increase as the number of pensioners increases. In capital expenditure some projects imply a subsequent increase in current expenditure. For example, the building of colleges of education means increased costs on training and later paying more teachers. Other projects, like house building, imply little continuing expenditure, while yet others subsequently save resources like high efficiency power stations which replace old low efficiency stations. The implications of each programme have to be added up, and double counting eliminated to produce the total demand year by year.

publishing the surveys

The Plowden Committee (*Control of public expenditure*, Cmnd 1432), reporting in June 1961, just before Mr. Selwyn Lloyd's sudden conversion to planning and not unconnected with it, thought it "doubtful whether any government will feel able to place these surveys before Parliament and the public. To do this would involve disclosing the Government's long term intentions for a wide range of public expenditure; and also explaining the survey's assumptions about employment, wages, prices, and all the

other main elements in the national economy. It would be surprising if any Government were prepared to do this."

Fortunately, this low opinion of governments, the public and democracy did not hold sway for long. In December 1963 Mr. Maudling, the most professional of Conservative Chancellors, under pressure to justify commitments to vast new programmes of public expenditure before the election, published a White Paper, *Public expenditure in 1963-64 and 1967-68* (Cmnd 2235, 1963) giving estimates of public expenditure four years ahead under a dozen different heads. However, the White Paper was never debated in Parliament and the vein of constructive political controversy it offered was never really opened up. In the middle of the election campaign Harold Wilson produced from it the conclusion that the Conservatives were proposing to increase the weekly pension rate each year by only 2s 4½d and Mr. Maudling retaliated late in the campaign with a string of tax increases which he claimed would be needed to pay for Labour's programme.

But the ice was broken and there will not be the same diffidence about publishing plans in the future. Although the White Paper contained little enough information it did mean that Labour Ministers were not really justified in claiming on taking office that they had no warning of the extent of the commitments the Conservative Government had left behind. But there was ample cause for complaint that the means for increasing production and exports were less clear.

estimating resources

The five year surveys of public expenditure are, of course, accompanied by estimates of prospective national resources. No description of the methods used in making these estimates has been published.

In the internal planning of particular programmes the only civil field in which

the logic of planning is being considered in mature form is education. By contrast manpower planning is primitive according to Mr. C. E. D. Wooster of the Ministry of Public Building and Works, "whatever measures have been taken by the government to regulate building investment in the past, the tendency has been to produce the wrong trend at the wrong time" (British Computer Society, *Models for decision*, English Universities Press).

As far as the impact of government expenditure on the economy is concerned, the description is almost wholly in financial terms. In this matter of the impact on the economy, the control of government expenditure is no more advanced than the control of the whole economy.

NEDC REPORTS

NEDC came into being in 1962 because of widespread concern about the lack of growth. It has tried to bring industry and Whitehall closer together, to introduce a longer term perspective into the decisions of industry and government, to bring an industry by industry point of view into the management of the national economy, to give management and unions an opportunity of together discussing national economic policy, and to advocate a number of general reforms in such matters as taxation, management education and regional policy. So worthy aims could not fail to gather support.

Privately NEDC has no doubt been a useful channel of communication between industry and the government in encouraging an expansionist attitude in government policy itself. Publicly, what NEDC has done is to publish a series of reports the major ones being *Growth of the United Kingdom Economy to 1966* (February 1963), a progress report on this *The Growth of the Economy* (March 1964), and *Conditions favourable to faster growth* (April 1963) advocating some general reforms.

The first report gives a macro-economic projection of the economy in 1966,

loosely linked with projections for 17 individual industries. The industry reports were based on the answers to questionnaires to industry asking what they would achieve in 1966 on their present plans and on the assumption of a 4 per cent growth in national production. The likely impact of a 4 per cent growth on their customers was discussed with each industry, but shortage of time limited the amount of mutual adjustment possible.

The progress report a year later followed much the same lines, being inevitably embarrassed by the 1962-63 recession. Including the year 1964 with its faster growth, the main disappointment has been exports, which should have risen by 15.7 per cent and have risen by only 10.5 per cent (1961 to 1964).

nedc methods

Examining the methods of NEDC from the point of view of the logic of planning, the descriptions is macro-economic with industry level trimmings. For measurement the plan relies on the national accounts, except at industry level where since complete coverage and consistency is not attempted any convenient base was used.

The NEDC prediction indicated the performance of the economy in 1966, but not in the intervening years and therefore gave no indication of the course by which the 1966 targets could be attained, by contrast with Treasury short term forecasts which deal with successive quarters. However, this has been common to most such plans. The objective aimed at was an average growth of production of 4 per cent per annum. But no control actions were prescribed to keep the economy on course.

This was deliberate. The NEDC plan was an exercise in "indicative planning". The intention was to show what a growth rate of 4 per cent implied for wages, investment, exports and so on, with some industry level details, and then leave firms to work out for themselves what this implied for their business. There is

no published evidence of what effect this has had on firms.

the effect of nedc targets

It is interesting to ask what effects the NEDC target could have on decisions made in a firm. It would not affect production, since this is decided by reference to immediate orders and stocks. It would not affect prices, since these are determined mainly by immediate costs, competition, capacity and demand. It is really only on investment that the NEDC targets could have an effect, and then only when a firm believes the demand for its product rises in some definite relationship to a wider aspect of the economy. This may be national production, or some other national total like consumer expenditure, or the output of some other industry or commodity, or some combination of these.

A good example of the argument was given by the Iron and Steel Board in 1957 in *Development in the iron and steel industry* forecasting demand for steel in 1962. In this case national production and the steel consuming industries did not expand at the rate assumed, and the amount of steel used per unit of product decreased, so that the forecast for 1962 turned out to be 19 per cent above the trend value and several thousand steel workers were unemployed. The difficulties at least over the lower rates of growth of other industries could have been avoided if there had been some better indication of how they would move. After this chastening experience anyone would wish to see the position improved.

The importance of avoiding bottlenecks due to lack of capacity in capital intensive industries with a small number of large producing units, like steel, should not be underestimated. Indeed imports caused by the lack of such capacity in the chemical industry were significant in our 1964 balance of payments difficulties. But important though this is, it is rather a restricted type of decision in rather a restricted type of industry, to make the

basis of a national economic planning system.

It would be surprising if, on enquiry, the NEDC targets turned out to have had very much impact on decisions outside the large unit capital intensive sector of industry. Even here, private enquiries suggest the NEDC figures have had little impact in the private sector.

However, it may be argued that the NEDC targets help to set an atmosphere of growth in industry and that they let trade unions feel that their chiefs in the Council are chivvying the employers into expanding production and therefore wages. NEDC, it is argued, is an important confidence factor. But this would be a sad end to an idea which was meant to replace the nightmare world of confidence factors in Whitehall and the City by something a little more rational.

Even if there were no planning role for NEDC, its role as a forum for discussions between government and both sides of industry is important. It has done and still can do much useful work in the development of new ideas and particular policies. But the general goodwill towards NEDC should not be allowed to obscure the limitations of its early planning activities.

THE DEA PLAN

The staff of NEDC were divided into an economic division and an industrial division. Most of the economic division were transferred to the Department of Economic Affairs, taking their previous ideas on economic planning with them.

The method of preparation of the DEA plan seems very much the same as the NEDC plans—a macro-economic projection supplemented by an industrial enquiry. In the industrial enquiry, industries (not firms) are asked, on the assumption of 25 per cent growth in six years, what they expect to produce in 1970 for the home and export markets, what materials, fuels and services they will use, how many administrative, technical, skilled

and unskilled workers they will employ and their total in each region, investment up to 1970 and the increase in output possible from existing resources.

The methods of description and measurement to which the first version of the DEA plan is committed will therefore make it look very much like the NEDC plan. But the Labour government should not get itself into the position of defending an approach which is incomplete in its logic, impracticable in its execution, and for which in any case it was not responsible.

The questionnaire sent out by the DEA has been reproduced by the Institute of Economic Affairs and criticised by John Brunner in *The National Plan* (Eaton Paper 4, 1965). His criticisms are cogent, intelligent and on the whole fair, but he is mistaken in supposing that the questionnaire adequately represents Labour Party thinking on planning. Brunner's critique would seem to strengthen rather than damage the case for the approach to be described here.

machinery to hand

It is obvious that it would take longer than a year to design, develop and tune up a satisfactory planning system, and any "plan" produced by a Labour Government within a year of taking office would be bound to use the machinery which lay ready to hand on taking office. What is to be avoided then is not the production of a very provisional "plan", produced by an unsatisfactory method, but rather the supposition and claim that it is a satisfactory plan or still worse, allowing the inadequacies of the plan to attach to the idea of planning itself.

The plan will presumably start as a five year rolling plan revised and extending its range by a year each year. This offers not only the necessary facility of revising figures in the light of new developments, but also of revising methods. There might be something to be said for setting the first plan in the context of a statement of such methods as are being

and will be developed, so that the provisional "plan" is there for what it is worth, and to whet the appetite for something more satisfactory.

The atmosphere of the first six months of the Labour Government, with a balance of payments crisis and massive changes of direction in government policy, was not conducive to clear thinking about planning, and the next months should be better in this respect.

REVIEW OF PRESENT METHODS

On the face of it, it seems odd that in our short term planning—the control of the pressure of demand—we should be using a relatively simple highly aggregated model of the economy, yet when we look five years ahead we lean towards a much more detailed model disaggregated down to the industry level. We act as if we know more about the future five years ahead than we know about next month.

One answer is that the models are doing different jobs. The short term model, it might be said, is needed for controlling "liquid" resources which move about readily and for which a disaggregated model is not needed, whereas the long term model is needed for distributing resources to highly unliquid investments to which they subsequently stay fixed. But that does not stay why we pick these aspects of the economy for control in the short term and long term, why we suppose that short term demand is "liquid", or more accurately that short term demand is so geared in relation to resources that it can be treated as virtually a single variable, like the amount of puff in a balloon which determines its size and shape.

historical development

The real reason seems to be historical. The matter has not been thought out from first principles at its present stage of development. Keynes established the idea of regulating demand. To carry this

out Meade and Stone developed the principles of national income accounting and compiled the first national income accounts in 1941. The natural accounting period was a year. The regulation of demand first worked simply on a feed back basis, looking at demand in the past year, and taking account of the more obvious other changes in the current year in deciding policy. The accounting period of a year gave too old a starting point for future policy, so quarterly accounts and a more thorough forecasting process were developed, but it has all proceeded basically at the same level of aggregation on the same basic economic framework that seemed sensible in 1935.

When a more disaggregated approach became possible a year was again taken as the accounting period, partly because much fine structure detail like the Census of Production and annual reports cover a period of a year and partly to limit the sheer volume of information. And in order to accommodate the new interest in growth which is largely wrapped up with investment, and because investment from its first consideration sometimes takes years to bear fruit in production, a year some five years ahead was picked as a target.

This is an understandable historical development but it has left us with this curious position of trying to handle the long term future in greater detail than the immediate future. The immediate future is, of course, controlled by market forces and the decisions of firms—a vast mass of decision—but at present these belong to a different world and have a different rationale unconnected with either the short term control of the pressure of demand or the long term projections. Until this connection is made the confusion of thought about planning will continue.

the flow of detailed information

Another factor in the situation is the technical limitation imposed by the flow of information. Detailed information takes longer to produce than less detailed

information. This is true, for example, in the national income and expenditure accounts, the censuses of population and production, and privately, in company accounts, and indeed in a personal bank account, where the balance can be seen on inspection but the filling in of an income tax return takes much longer.

Yet on the other hand, detailed information used on the spot in the making of operating decisions exists before the totals are added up, and the detailed analyses made. For example, on a chemical plant the instruments and controllers on different units of a plant are continuously indicating and controlling the costs and output of the plant which are known long before the profits of the company are worked out and the costs analysed by the accountants. These new cost analyses are then used on the plant for controlling the operations in a future period.

It is necessary, therefore, to distinguish between the use of fine structure information at source in decision making, and the subsequent analysis of this information in producing new decision rules and for other purposes. Furthermore, if the information flow is properly organised, the fine structure information can be got from source to user as quickly as it is needed: what takes time is organising the flow.

The right approach is to look at the decisions which have to be made, and then provide the information needed to make those decisions by organising the information flow appropriately.

THE FRENCH EXAMPLE

Before leaving present methods of planning, reference should be made to planning in France, which has been an important influence on the development of ideas in planning in Britain (*Economic planning in France*, Political and Economic Planning, 1961; *French planning: some lessons for Britain*, Political and Economic Planning, 1963; John and Anne-Marie Hackett, *Economic Planning in France*, Allen and Unwin, 1963;

Economic Planning in Britain, France and Germany, Political and Economic Planning, to be published).

It should be realised how developments in France differ from those in Britain. There was a considerable resemblance between NEDC and the French Commissariat au Plan, and between the NEDC reports and the published versions of the French plan. But while NEDC had no executive powers, M. Masse, the Commissaire General du Plan, is economic adviser to the Credit National, the state bank from which French industry draws most of its finance for new investment.

Each major loan goes to M. Massé for his comments and is seldom if ever granted on terms he has not approved. For example, an English company borrowing money from the Credit National to build a factory in France found "le Plan" insisting that a stated percentage of its output should be exported, and much to the astonishment and disgust of the English company the loan was refused until this was agreed. Also, M. Massé himself sees the officials of the 100 or more largest French companies each year, not for a chat over lunch, but to go over their accounts and plans for the future with them. So while his control is over investment, it is exercised with a knowledge of the total activities of a firm, and therefore has an influence far beyond investment.

a comparison

No government department in Britain has that kind of influence over industry as a whole, because the capital market in Britain is more efficient than that in France. The French are trying to improve their capital market to attract more savings into industrial development. It would be doubtful wisdom for Britain to enter a situation from which the French are trying to escape; Britain should find means of shaping industrial investment without foregoing the efficiency of its capital market. M. Massé does not feel that with a more efficient capi-

tal market in France the influence of "le Plan" would diminish, and presumably he expects to see new planning instruments developed.

The French plan has worked in terms of a terminal year, that of the Fourth Plan being 1965, though the Fifth Plan to 1970 will contain figures for intermediate years. But even before the "stabilisation" in 1964—a good old English "stop"—the need was accepted of finding some way of integrating the short term control of the pressure of demand with the long term plan of development. The Finance Minister, M. Giscard d'Estaing, has his reservations about "le Plan", but since President de Gaulle continues to be enthusiastic, the search for methods of integrating short and long term policy is likely to go forward.

The basis of information available to the French plan is less highly developed than that available in Britain. For example, no census of production has been taken in France until 1964, the sources of production information having been primarily trade associations. The deficiencies of information are being remedied. There are no inhibitions about the use of mathematical methods when appropriate.

M. Massé himself is the author of the highly mathematical standard French work on the choice of investments (of which neither the French version nor the American translation were available in any Whitehall library). Given the situation in England it seems likely that the French planners would have adopted more, not less, sophisticated methods than they have yet been able to use in France.

the commissariat's influence

The three men who have been Commissaire General du Plan since the War, Jean Monnet, Etienne Hirsch and Pierre Massé, have all been professionals, the latter two having been engineers with a background of industrial experience. In the Commissariat the senior officials are mostly Inspecteurs des Finances who are

senior civil servants, and there is not a separate cadre of economists who draft the Plan.

The French Commissariat au Plan is not a powerful Ministry, and indeed is not a Ministry at all, having no political head. It is felt in the Commissariat that it has been able to work more effectively in this role, since it is not seen as a rival by any of the Ministries with which it has dealings. M. Mendes Frances' attempt to set up a co-ordinating economic ministry is remembered as a failure. This is no doubt a reason why planning has developed steadily in France since the War, despite political instabilities. The Commissaire General sees the President in person as well as Ministers, and the various stages of "le Plan" are discussed and approved at the highest levels, so the Commissariat is not without influence. The political situation and tradition is different in England, and the lessons may not apply.

The French experience of planning will continue to be of great interest to English planners, but it is important to understand its circumstances, learning as much from its present developments as from its past achievements.

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3. new methods of planning

It is essential to get absolutely clear what planning is meant to achieve. It is not trying to achieve 25 per cent growth by 1970. As far as growth by 1970 is concerned, it is trying to achieve as much as possible; it might be less than 25 per cent, but it is very much to be hoped that it will be more as this is not an exciting figure.

What planning is trying to do is to get as much as possible out of the economy now and in the years ahead, and to shape the economy in whatever we may feel to be a desirable form. Most important to us now is what we do with the economy *now*, not in 1970. 1970 is important and has to be given full weight, but only in so far as it helps us to decide what to do now.

It is unfortunate and illogical that at the national level "planning" should be put safely out of the way in 1970, while the other two major planning operations, the control of the pressure of demand, and the control of public expenditure, which are not *called* planning, are put in charge of the sharp end of the time scale—the short term.

long and short term objectives

The long term is of immediate importance for three reasons. First, because of objectives which require long term programmes of expenditure on which we have already embarked, secondly because of the necessity to set aside from current consumption sufficient resources to provide investment for future growth, and thirdly because reorganisation takes time and we must always have an eye to the organisation as well as the material investment that will be needed for future tasks.

However, the greater part of planning has to be done in the short term, in the full use of our existing resources for exports, consumption and investment, if only because of such pressing matters as the balance of payments, local employment and pension increases. We have still to maximise our current production.

We must bring our planning methods forward into the present.

Certain principles should be accepted at the outset. First of all, the private consumer, having paid his taxes, should be free to buy what he likes. Secondly, there should be a job for everyone wishing to work, which makes good use of his abilities. Thirdly, given any production requirement, it should be carried out as efficiently as possible. Lastly, there will be certain social commitments to which the government is bound which should at least be fulfilled, and which, therefore, can only be varied upwards in the planning process.

WHAT KIND OF MODEL

Most of what we have been talking about so far is so much Greek to the public at large, and in particular to the Labour movement, and to nearly all businessmen and industrialists. It is not that these national activities do not affect their lives profoundly, but that as a source of information these activities, as at present organised, have almost nothing to contribute to the decisions they have to make. Few people inside government or out would rise to the breath-taking honesty of one Treasury forecaster who said, hotly apposed by another, "We have little to learn from industrialists, or them from us. It's like a doctor having little to learn from his patients". He may have been nearer the mark than his more public relations conscious colleagues and masters.

the traditional model

The economist starts by seeing the economy as a set of flows—money, goods, services—through channels labelled "production", "investment", "exports", and so on. The firm is dissected into the contributions it makes to each channel and the contributions from different firms are added up. Generally it is supposed that each flow is made up of contributions from many different firms, and the firm itself disappears.

The economic argument is then conducted in terms of the flows—involving their measurement, prediction and control. If action is to be taken on some such flow a force is exerted on it—monetary, fiscal or direct control—and this acts on the firms contributing to it. When the economist has to think about the firm he sees it as a fish swimming in a sea of forces—some market forces, some government made. In fact, of course, the fish is swimming in a sea consisting of just other fishes, and this is often as uncomfortable as it sounds.

As has been emphasised already, the use of this traditional model by economists has been of inestimable benefit to the economy in general, and to firms in particular, in that it has made it possible to keep things moving far better than ever before. But it is not the only possible picture, the only possible conception or description of the economy.

the network model

The economy can also be seen as a network of relations between firms as decision making and operating units. The firms stay as they are on the ground as the nodes or junctions in the network, and money, goods and services flow between them. These flows are not all superimposed on each other as in the traditional model described above, but are kept distinct. In this picture the firm survives as a visible part of it.

The reason why this picture has not been widely used by economists, and certainly not used at all to describe the whole economy, is that it is a very much larger picture than the other. It is not necessarily more complicated, but there is more of it and its sheer size made it impossible to handle before computers were available.

There is, of course, no point whatsoever in adopting the network model unless it offers real advantages over the traditional model. Some would say that the very gimmickry of using computers should make one extra suspicious, but

experience suggests the opposite—that the moderately sensible use of computers is a powerful stimulus to fresh thinking.

The weakest link in arguments about planning in Britain, at which the discussion tends to get woolly, is the link between the plan and the firm—between the targets laid down by the plan and the decisions of firms by which alone they can be implemented. To fudge this link is to discredit planning. It is not an answer to say that the planning process must be co-operative. The question that has to be answered is how the co-operation will work. The lessons about relations with firms learnt by the last Labour government and described by A. A. Rogow and Peter Shore in *The Labour Government and British industry, 1945-51* (Oxford, 1955) seem in danger of being forgotten. They should be recollected rather than repeated.

There have been political inhibitions about discussing the link with the firm, but the more fundamental reason why the question has not been faced squarely is that the traditional model of the economy does not provide the concepts which enable the relationships between the firm and the plan to be discussed. That is why the network model is of particular interest: it does deal with these relationships.

POLITICAL INHIBITIONS

The political inhibitions centre round the idea of nationalisation and state control. The Labour Party's commitment to common ownership arose because the economic order of the time was felt to be neither socially just nor efficient. A solution was sought in Herbert Morrison's concept of the nationalised corporation which was a principle of organisation suited to a situation where many parallel units were supplying a common market.

The effect of nationalisation was to replace a confused network of relationships between firms and customers by a pyramidal network with the production units working in parallel. The National

Coal Board is the clearest case, but gas and electricity are similar. In the case of railways, this form of organisation did not throw up the right answers, and it was not until the unitary organisation of the railways was used to produce an analysis of the cost structure of the industry that the necessary lines of action began to emerge.

The steel industry has a parallel structure for which the Morrisonian corporation would seem a suitable management organisation, but as it develops with increasing vertical integration into more diverse finishing processes this will become less true. Rationalisation in the early years of nationalisation will not mean that the steel industry can escape from the more complicated relationships of the economy at large.

attitudes to public ownership

Today there is again a widespread feeling that the economic order is not efficient, and that in relation to what could be achieved it is socially unjust and frustrating. The Labour Party should be prepared to adopt no less radical measures than it did in 1945. But the relationships in the economy which it has to put right are more complex. That does not mean that the underlying attitudes of the Labour Party should change—the belief that there is such a thing as the common good which it is sensible to seek, and which must be expressed in some kind of common ownership and control. But it does mean that the analysis must take hold of the problems of today.

The solution is a political solution, to which there will be political opposition. Political battle is the means by which society gets used to new ideas and gets old ideas out of its system. This is not the same thing as industrial or economic opposition. The co-operation of industry will be needed: it will be forthcoming to the extent that the action is seen to be relevant and sensible.

While public ownership is seen as the last resort in getting a plan implemented

there will be political inhibitions about discussing the implementation of a plan, and the attitude to public ownership will continue to be prejudiced. Treat public ownership as a whip or a scorpion and people will regard it as such. But if instead the interests of the public are properly defined in the first resort, political inhibitions about implementing the plan will be shed, and the attitude to public ownership will change.

direct controls

Direct controls are sometimes suggested as the obvious method of linking the plan and the firm. There are circumstances in which direct controls are necessary and effective, as for example on the rents of private rented accommodation in the conditions of scarcity prevailing in Britain today. Their successful use depends on general agreement that they are necessary, and an underlying tendency towards "controlled" behaviour anyway.

There are also circumstances in which controls are ineffective because they are merely negative: town planning is an obvious case. The planner can only tell developers what they cannot build. Firms cannot tell them to build, and the result has been mediocrity on both sides.

To consider the effectiveness of cases in between these types of direct control in the field of economic planning we have to look at their role in the traditional model of the economy, which will also illustrate the limitations imposed by this model on the handling of the relationship between the plan and the firm.

In the traditional model it may be decided that the way to correct an imbalance in overseas payments is to restrict imports. If direct controls are used particular firms have to be denied imports of particular goods. Yet since the nature and circumstances of different firms vary, the effect of the import control on costs, production, home sales and possibly exports, will vary from firm to firm. Either an allocation rule is laid

down which depends, for example, on previous imports, in which case the control will be in some cases unnecessarily disruptive, or rules are laid down by which the case of each firm can be judged more on its merits, in which case the effect of the import controls cannot be predicted in advance.

The mere fact of having controls does not necessarily produce the effects intended, as was found with building controls after the war. Direct controls have their uses, but they do not provide the answer to the question of relations between the plan and the firm. They simply phrase it in a different way, and in a different tone of voice.

fiscal and monetary controls

The difficulties of direct controls are not, of course, limited to this particular type of control. In the traditional model if a fiscal or monetary control is applied to some flow, the effect on different firms will vary as do the effects of direct controls. There has been a tendency to suppose that because a control does not require in its administration dealings between the planner and the firm, that the reaction of the firm is unimportant, being in some sense averaged out. However it is very important, because "averaging out" means in fact totalling up.

Where the reaction of firms to these general controls has been examined, the result has sometimes been disconcerting. In the case of investment allowances, for example, most firms were found to make their investment decisions on a pre-tax basis, thus making it impossible for a tax allowance to have any effect on the decision, while other firms have used the "free depreciation" intended to increase employment in development districts to automate up to the point of actually reducing employment, using equipment manufactured in areas of full employment, thus doubly defeating the objective.

To evaluate the effect of controls in executing a plan according to the tradi-

tional model it is therefore necessary to go outside the model and look at the behaviour of individual firms. It is only one step on to start with the firms themselves.

We have considered two approaches to the decisions of firms in relation to the plan. The first is to let the firm decide what it wants, and then modify that decision by direct controls. The second is to let the firm decide what it wants, but to add a further factor to the decision by providing a general incentive of some kind to encourage conformity with the plan. A third approach is to bring in the plan not as an additional incentive but as a basic factor inherent in the original decision.

monopolies and large firms

Monopolistic abuses are condemned from left and right. The right has to deal with them in order to prove they are not a fatal flaw in the logic of free enterprise. The left has to deal with them because they are a flaw in free enterprise. But from left and right the attempts have had little to do with planning. The role of the Monopolies Commission, whether strengthened or not, is essentially peripheral.

Monopoly legislation has been an attempt to impose the traditional model of the economy on firms, presupposing that they can and should normally behave like fish in a sea of economic forces. It has been trying to make the economy fit an inadequate model, instead of using a model adequate to deal with the circumstances in which monopolistic abuses arise. Firms are not fishes, and the attack on abuses will remain ineffective until something like the network model is available to provide a framework within which the trading practices of individual firms and the relationships between firms can be properly examined and corrected as a part of normal trading activity. This is doing what the price mechanism is meant to do, but which it cannot do unaided because it has not got the information handling capacity required.

Much the same kind of observation might be made about giant firms. The increasing size of manufacturing units built to attain the efficiencies of scale, and the proliferation of services needed to sustain the manufacturing process from research through development, design, construction, production and sales, all tend to favour the large firm. Except where the giant firm is merely a holding company for an assorted collection of smaller enterprises, its activities cannot be adequately described by the traditional model of the economy, with its atomistic firms.

The popular myth about the supernatural powers of the giant firms ("Of course you may be able to do that in 101, but . . ."), fostered by the weaker brethren in these firms themselves, is as foolish as the assumption that they are merely conspiracies to defeat the laws of competition on the one hand, or the will of the people on the other. They are necessary but they are imperfect. An air of benevolence and a gloss of efficiency are no substitutes for an adequate scrutiny of their trading activities, investment and production. The idea of social accountability should be given some precision.

Simply lumping activities under the umbrella of a large firm does not solve the problems of their relations with each other, and their several relations with the outside world. While the large firms have much to contribute to a planning system which would offer small firms many of the advantages enjoyed by large firms, the large firms themselves would also gain.

THE LINK WITH THE FIRM

At any particular time, say the beginning of the month, a manufacturing firm or establishment has a certain number of orders in hand. Likewise, it has some stocks of materials and purchased components, and further supplies on order. Some orders, both from customers and to suppliers, may be tied up on regular contracts, but during the month further orders and contracts may be received and

placed. Also during the month goods will be produced, goods despatched to customers, and supplies will be received.

the firm's problems

What the firm wants to know first is where it can get orders, for what, at what price, and for what delivery date. It wants to bring the best orders home. It may also want to know where it can get supplies of materials and components, or where it can place sub-contracts for outside work. In the light of its order book and stock position it will have to decide what to manufacture and how, and in many businesses this also means having to take a view on future orders, obtainable.

Secondly, at any time a firm has certain plant and machinery available for use. It may have more on order, and this will affect its attitude to looking for orders. Some of its equipment will be becoming redundant or obsolete and decisions will have to be made on when to scrap it. The extension or replacement of plant and machinery is always a possibility, and the justification for this in terms of costs and future work has to be examined, and length of delivery or time to completion have to be kept in mind.

Thirdly, and most important, the firm has people dependent on it for a good living, including the boss. The firm wants to know if there will be work for them, what additional people will be needed, with what kinds of skill, whether and where they can be found, and what they should be paid. If the volume or pattern of work is changing, some people may have to go, others will be needed very much and others again the firm will be under obligation to keep. Training will be needed, and the amount and kind will have to be decided.

Fourthly, the longer term prospects for the future will have to be examined. Consideration will have to be given to how much more work could be taken on and what would be required to do it.

or what work could be shed with what saving. The limitations—plant, buildings, or just organisation—of the firm must be examined.

Finally, an examination must be made of how the firm can be kept in a healthy financial state; what working capital is needed, how much should be kept in reserve and how much distributed to shareholders; how extra capital can be raised for expansion. The control of the company itself may have to change.

Every firm has its own way of making decisions. All firms make some wrong decisions, and some firms make fewer than others. It is on this process of decision that any wider system of planning has to operate. If the right approach is made there is much to be done and much can be done.

dealing with problems

At the level of the firm the role of a wider planning system is:

to provide the firm with the information it needs to make its own decisions which it is not able to get adequately from the market and its own trade contacts ;
to obtain from the firm information needed by other firms and agencies if they are to make proper use of the capacity of the firm, and of their own capacities ;
if necessary, to show the firm how to use the information it gives and receives, in conjunction with its knowledge of its own business, to make better decisions ;
to identify where intervention will be needed to reconcile the interests of the firm with a wider interest, and to bring the appropriate instruments into action.

This does not amount to running the firm's own business. Seeing the firm as a car and its management as the driver, the planning system gives him a map, roads, garages signposts, a highway code, and possibly even driving lessons. The better he drives and the more he enjoys it, the more comfortable the economy will be for everyone.

The firm may well benefit from employing management consultants to examine problems of internal efficiency, but the planning system as such would not normally do this type of work, though there is much to be said for the close association of management consultants with the planning system.

The information given to firms would include not only straight data but also the results of standardised operational research type exercises, including research techniques for finding potential customers and suppliers. Trade directories are indispensable, but they cannot give any indication of current order books and spare capacity, and these will take some finding in a fast developing economy operating at high pressure. Stocks, orders and rates of consumption will be recorded, down to quite a fine classification of goods, not only at end use, but of materials through intermediate stages of manufacture. By providing the information on which sensible ordering policies can be based, it will be possible to respond quickly to demand and avoid stock cycles. It will also make it easier to identify more quickly and precisely where investment is needed.

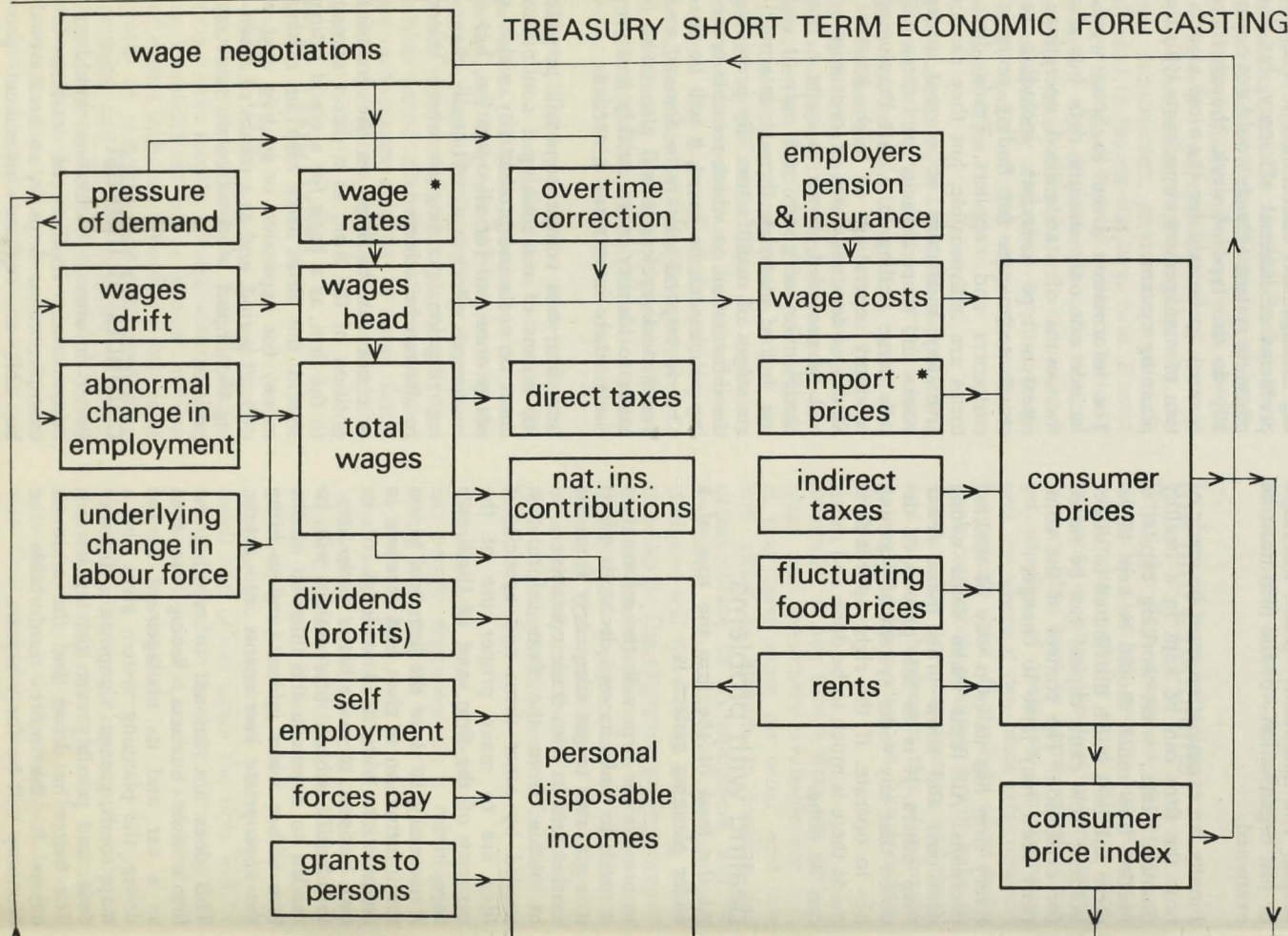
Inter-firm cost comparisons will provide the means of maintaining a continuous check on costs and productivity, which is not a once and for all operation, but a continuous effort in a continually changing situation, pointing to where better results can be achieved.

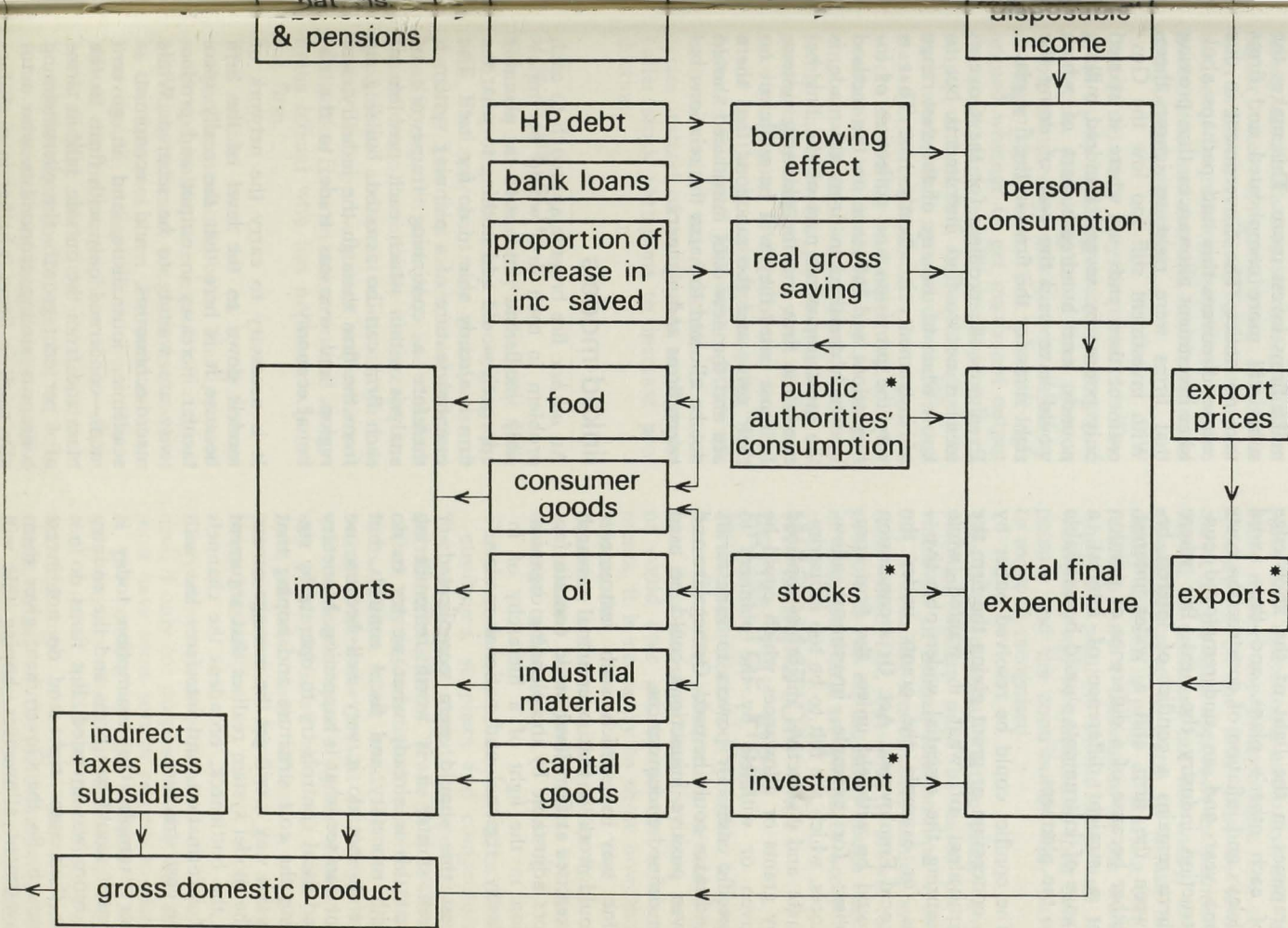
A check can be kept on the financial position of the firm, as a direct service to the firm, as a basis for a credit rating should the firm need help in raising money for expansion or to tide over a difficult period, and as a means of assessing the impact of government monetary policies.

conflicts of interest

Better informed discussions would reduce certain conflicts of interest—for example, major firms in an area would be able to rephrase investment pro-

TREASURY SHORT TERM ECONOMIC FORECASTING





* main exogenous variables

grammes in the light of the knowledge of each other's plans, and thus avoid delays and inflation of construction costs one year and an underemployed construction industry the next. But where there remains a conflict of interest between the firm and a wider interest, either because of a difference of opinion or a straight difference of interest, a range of instruments should be available to the planners.

The conflict could be resolved either by a concession or grant giving the firm the equivalent of what it wanted while securing the essential wider objective—as for example the grants under the Local Employment Act. Or a concession could be withheld unless the firm complies: for example, investment allowances, which are felt to be too indiscriminate and ineffective, might be replaced by grants or allowances which could be given or withheld by the planners in specific cases. Or powers to vary tariffs and taxes could be used. Or negative and even positive injunctions could be used in defined circumstances.

One way by which such instruments could work is that operational research exercises at firm level could contain factors adjustable by the planning organisation in the light of a hierarchy of industry, regional and national models.

Lest this should seem complicated or even sinister it is worth remembering that this is already what we try to do with monetary and fiscal controls, but we do not do it very well because no one can see what is happening. Monetary and fiscal controls try to operate by rigging the cost structure and hoping that in this way it will get the message across. The model system realises that argument is the bottleneck, broadens the channels of information, and interferes less with the cost structure.

For example, the assumption today is that it would pay firms and the country if more was invested. But firms do not do their sums right and do not invest enough. So the Government gives them investment allowances, hoping this will

make firms invest more. This makes the sums still more complicated and firms take no notice. The Government in due course discovers this and perhaps abolishes investment allowances, thus proving that firms were right to ignore them. With investment still too low the Government then ends up where it started only poorer by several hundred million pounds, one hundredth part of which would have paid the cost of doing the right sums for the firms in the first place.

Even now the problem for the Government is not to find instruments but to know when to use any of the vast range of instruments it already has. That is why the provision and collection of information, and influence on the method by which decisions in firms are made, is the most important part of the link between the firm and the planning system. In most cases they will be sufficient on their own, and the sanctions that there are and the new ones introduced should not be allowed to harm the relations between firms and planners.

linked models

An *ad hoc* fire brigade approach to each problem in each firm would be impossibly inefficient, and such a planning approach would add nothing to what the firm is already able to do for itself. The essential feature of a planning system is therefore a continuing framework of analysis within which each problem of each firm can be assessed, building up from the firm through the industry, and region, and overseas trade, to the national economy.

It is necessary to carry the network of models down to the level of the firm because it is here that the really spectacular increases in output and productivity are waiting to be secured. While macro-economists, and economists—academic, journalistic, and in government—concerned only with firms in the mass and from the outside, talk in terms of 4 per cent growth, the overwhelming consensus among economists who actually work in firms, whether in manufac-

turing, distribution or services, is that far higher rates of growth are attainable with available resources by better organisation of the relations between firms, between firms and markets, and in yet more complicated situations.

One (true) story may be permitted. Two great works handling successive stages of a process, producing more than many a whole commodity market, were linked by a single stock tank. For years it was argued whether to get maximum output the stock tank should be kept full, or empty, or half full, as the throughput of each works went up and down. When it was finally realised that the supplying works should try to keep it full and the consuming works should try to keep it empty, with the level allowed to vary freely in between, profits went up by comfortably six figures a year. It did not take a computer to think of that one, but it did for the next six figure saving. Too naive to be true? Yet we are often still bothered with the mischief of stock cycles instead of being able to organise buffer stock variations to increase production.

the approach

The aim must be plainly to help the firm, and help the economy by helping the firm. The approach must make sense to the firm. The firm needs to understand what is required and why, and the firm should be able broadly to accept the good sense and practicality of what is asked. The approach must not come out of the blue from an unknown and anonymous official who has no knowledge of the firm.

The contact must be on a continuous and not a spasmodic basis. The approach must not isolate one aspect of a firm's activities, but must see them as a whole, as the firm sees them. Patriotic exhortation should be kept in its place. There should be no atmosphere of a witch-hunt, and the role of the planners should be not to discipline failure, but to reinforce success. When the planners make a specific intervention they must do so with

plain and understood authority, and in other matters the independence and responsibility of the firm must be honoured. In personal approach the planners should be confident but not cocky, and always prepared to learn. In British industry there is a pride of craft, a comradeship, and a fascination in the work which the planners should share and to which they will be admitted as their competence and the contribution they have to make is recognised.

This is the essential starting point: any planning system must be based on a viable set of human relationships. Without it even the smoothest planning system would fail, but with it it will be possible to rub off the many rough edges in methods which are bound to occur.

INFORMATION FROM THE FIRM

To establish that it is possible to give firms far better information on which to base their decisions than they now have or could ever get by private arrangements, it is necessary to show how that information can be collected and processed in a form which enables firms to be handled individually, but by standardised techniques.

The sources are, of course, other firms—customers, suppliers and competitors. The government already has powers under the Statistics of Trade Act 1947 to collect any information it requires from firms. There is no need for the time being to alter the present confidentiality rule: unless a source agrees otherwise, any total published must be made up from at least three different sources to prevent the return from any one source being identified.

Every firm has records of its own business, if only for purposes of the law, and most have some sort of records to assist in the conduct of the business. They may be very crude, or they may be a well tailored model of the firm's own activities used in its own decision processes. Most of the information asked for from a firm should be collected

already within the firm. Where this has not been so, the request for new information will be a part of the stimulus to the firm to improve its own decision processes, and will always have been preceded by the firm giving more valuable information than it is asked for.

establishment return

There have been sporadic arguments as to whether returns should be collected from enterprises, that is business units, or establishments, that is particular factories with a single location. Having previously been on an establishment basis the census of production is currently on an enterprise basis. It is unreasonable to ask for both, since information would be duplicated, yet information on both bases is needed, from enterprises to analyse the

control of production, and from establishments to analyse the use of localised factors of production like manpower. The difficulty should be resolved by collecting information from establishments with cross references to show which other establishments it owns or belongs to.

The establishment is then seen as a processing unit, receiving goods and services, and producing other goods and services. The table below gives a schematic form for an establishment return. To keep track of the business it is necessary to record both the movements of goods and the movement of orders, which link up at the point of despatch. To provide this flow of production the enterprise uses capital equipment, plant and machinery, buildings and vehicles, which will remain largely the same throughout a short reporting period, but any additions

ESTABLISHMENT RETURN																								
REFERENCE NUMBER					NOMINAL CAPACITY																			
ADDRESS					PARENT ESTABLISHMENT																			
PERIOD					REFERENCE NUMBERS OF																			
HOURS WORKED BY					SUB-ESTABLISHMENTS																			
ESTABLISHMENT					AND PROJECTS																			
					OUT				IN			CAPITAL IN USE												
					product		services		materials and fuel		services	plant and machinery		buildings	vehicles									
					A	B	C	X	Y	P	Q	R	S	V	W	a	b	c	d	e				
purchase/sale price					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
initial stock					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
product'n/consumpt'n					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
sales/deliveries					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
loss					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
closing stock					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
orders at beginning					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
new orders					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
orders cancelled					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
closing orders					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
factor requirement					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
for marginal increase					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
in production					.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
<i>limitations</i>					MANPOWER									F G H J K										
plant					.	.	.	.	.	numbers employed at end									.	.	.	.
buildings					.	.	.	.	.	hours worked/week									.	.	.	.
organisation					.	.	.	.	.	total wages paid									.	.	.	.
					.	.	.	.	.	cost of fringe benefits									.	.	.	.
					.	.	.	.	.	requirement for increase									.	.	.	.
					.	.	.	.	.	of production									.	.	.	.

or disposals should be reported. Finally, and most important, the number of employees, the time they work, and the amount they are paid should be reported.

While this information shows what the establishment has done during the reporting period, it does not show what it could do, that is, the levels and limitations of performance which the establishment could attain. Most economists have boggled at a definition of capacity at an industry or economy wide level because of the lack of definition of the term, and where a definition has been given, the level of capacity has been inferred rather than measured directly. However, at the establishment level a meaningful definition and direct measure of capacity can be given for a particular type of establishment. For a typical manufacturing establishment this would give the additional requirement of different types of goods and services and of manpower needed to achieve a stated marginal increase of production of a type likely to occur. In technical terms this would be a direct estimate of marginal input/output coefficients. Estimates would also be given of the level of production which could be attained with the establishment's present buildings, plant, and general organisation. Such information is the constant preoccupation of management.

As well as the movement of goods and orders, there is the movement of funds. Whether these should be collected in the same way depends on what use is to be made of a flow of funds analysis in the general system of models. It would seem from the doubts as to what was, in fact, happening in the sterling crisis of November 1964 as if the flow of funds is still unduly neglected, despite the Radcliffe Committee. It could well be a useful analysis, not least at enterprise level for the benefit of individual enterprises themselves.

the project return

Some types of industrial activities, like building a ship or a power station, are better seen as projects, than as establish-

ments which constantly process goods in the same way. Their economic impact can be traced more easily by following the succession of demands for different types of goods and services through the construction period of the project which may stretch over years and is largely defined when the project is undertaken. As industry becomes more capital intensive, industrial units larger, and investment takes a larger part of national production, so economic planning will become in logic more like doing a jigsaw puzzle with capital projects, so as to use resources continuously, than like driving a car, wagging the same controls all the time.

The appropriate form for a project return can be seen in the office of any major construction site with its bar charts and profiles and critical path analyses. In the early planning stages of a project it will be specified by no more than a nominal capacity, a capital sum and a starting date, but as its planning progresses so the degree of detail possible, both as regards type of resources and timing, will get finer. A scheme for a project return is given below.

PROJECT RETURN

reference number and address
parent establishment or project
sub projects
period
description

COLUMN HEADINGS

(each column both quantity and value)
total to date
past month
each month remaining in current quarter
and in next quarter
each quarter thereafter in current year
and in next year
subsequent years.

ROWS

product handover
materials and fuel consumed (including
sub contracts not reported elsewhere)
capital equipment in use
manpower used

Taken together, the establishment return and the project return, by contrast with

the DEA questionnaire criticised by Brunner, ask for that information and only that information which firms are able to give and which is relevant to the activities of other firms and industries, and thus to planning in general.

classifications

It should be possible to accept the information from firms in the form most convenient and meaningful to the firm itself, carrying out any necessary reclassification in the editing process. Sometimes value, sometimes volume, terms would be used and sometimes both. The degree of detail would vary in each case, greater detail being necessary in key areas of activity, and where large volume is involved. Thus a large manufacturing firm or trader would generally use a finer classification than a small one.

Sample methods would be used where appropriate, but since the aim is to provide a service of information and advice to individual firms in their own unique circumstances, appropriate information would be needed from each firm using the service. Since the aim is to raise the quality of decision making in industry generally, the planning system should be in touch with every firm, the extent of its dealings varying, of course, with the size and circumstances of the firm.

In order to make this volume of communication practicable very careful thought would have to be given to formulating the methods of communication and the type of analysis most helpful in each area of activity.

INFORMATION ON MARKETS

The commonest line in debunking planning is to say, "You can't plan exports". But even if there were nothing that could be done to secure or anticipate the arrival of an export order, there would still be the need to find the production capacity to meet it. The whole point of planning is to be able to adapt more readily and efficiently to changing circumstances,

not to suppose circumstances never change.

planning exports

More is possible than this. First, the merits of planning do not stop short at Tilbury, though we sometimes act as if they stopped a little before. In developing countries, and in the rapid expansion of new industries in other countries, such as the expansion of the chemical industry in Russia and Eastern Europe, there is a great potential demand not merely for sales of items of plant and machinery, but for the sale of whole plants and, indeed, industrial complexes with whole programmes of development. There is a need to see a planned development at the other end and to direct sales efforts in relation to it.

The construction of a fertiliser plant in a developing country will increase food production and save on food imports, making possible the purchase of further fertiliser plants, in due course moving over to buying steel and heavy engineering plant to make possible the construction of a good deal of plant within the country itself. Needless to say, such programmes are beyond the capacity of any single firm in this country, and consortia have to be formed to handle them. There have been some useful exercises of this type already, but nothing on the scale that will be needed in the future.

Secondly, export market research is very underdeveloped. Since January 1965 the Government, through the British National Export Council, has been prepared to contribute 50 per cent of the cost of overseas market research projects on behalf of particular sectors of industry, trade associations, or chambers of commerce. In due course no doubt this could be put on a more systematic basis, possibly linked with the Government's overseas commercial representatives. When there is an effective planning organisation in this country the results of the market research can be translated into opportunities for particular firms which can conveniently take them up.

Thirdly, while many firms need help with overseas market research, many more need helping or prodding into actually selling overseas. The "piggy back" arrangement by which large firms are prepared to offer the use of their exporting organisations to small firms, will help firms prepared to take some initiative, but there would still seem to be a need for the active national export selling organisation which has been under consideration, for buying at home and selling abroad. It would seem likely that much of the work of such an organisation would be in getting firm specifications and delivery dates out of the selling firms in this country. A planning organisation in touch with the whole range of a firm's activities would be a powerful ally in such matters.

Finally, what may seem a small matter, there is need for improvement in the organisation of trade statistics. As the balance of payments is such an important factor in the economy, and as sterling is vulnerable to overseas confidence, it is important that the real prospective payments position should be known as fully as possible, and not merely by the last month's trade figures. When in the autumn of 1964 the Federation of British Industries challenged the Board of Trade's figures, which were unassailable in terms of actual clearance through customs, they had little information to offer on the orders and goods in the pipeline. These had, as it turned out, already determined a coming rise in exports, knowledge of which might have averted or softened the run on sterling in November.

imports

Until the election, imports were a much neglected aspect of the economy, and the import surcharge is only the first step—an unpopular and negative step—in developing some sort of policy on imports. There is no difficulty in obtaining all the information needed about them since they necessarily come through customs.

In many cases substantial imports indicate where weaknesses lie in the home

economy. Quite apart from the desire to save imports, such sectors of industry should be examined to see how their performance can be improved. Also, in areas of known weakness, overseas competition might be introduced by lowering tariffs to kill—and release the resources being used inefficiently—or cure.

Finally, in overseas development programmes it will be necessary to make room for further imports into this country from developing countries overseas. All these will be sources of change which will have to be taken into consideration in planning the home economy.

consumption

The starting point of any national planning exercise must be the consumer. What do we want anyway? The first answer is, "Leave it to us to choose". But to offer choice, the range from which we shall be able to choose and often the distribution of our choices within the range, have to be anticipated when production decisions are taken, and sometimes farther back when investment decisions are made. A man can buy any make of car he likes, but he cannot buy a type of car that is not made, still less can he buy a clear run through to Brighton on a sunny Saturday in August. The greater the skill in anticipating the choice of the consumer the more real can that choice be made.

Different people have different interests in consumer demand. There are the retailers and distributors; the first line manufacturers who actually made the goods sold, like cars; the second line manufacturers who make the materials for the first, like sheet steel and paint for car manufacturers; and the capital goods manufacturers who supply the others with their plant and machinery; and so on back into the general network of production.

The retailers and distributors are primarily concerned with selecting products and making an effective sales appeal to customers, though a large retailer can

have a profound effect on manufacturers, as Marks and Spencer have shown. The retailer is concerned with all the problems of ordering and stock holding, with the end of resale price maintenance, and with pricing policy. Help can be given in the use of efficient standard methods without actually owning the retail outlets, as has been shown by the success of grocery wholesalers who by undertaking to supply all the needs of a group of independent shops enable them to operate more efficiently. A weakness of the Co-operative shops is the lack of a well worked out logistical system.

consumer demand

The first line manufacturer is concerned with the demand for his particular products, and when he supplies less than 25 per cent of the total market his share of the market is likely to be a more important consideration to him than the size of the total market. The methods of assessing brand and design appeal are familiar to every commercial television viewer (85 out of every 100 housewives say that of the five brands tested . . .), but only the successful tests make good advertising copy. There is endless sophistication of market research on the demand for all kinds of products at all stages of design and marketing. The sheer volume of this work indicates the commercial importance of the results (J. A. P. Treasure, "Consumer durables", *Models for decision*, English Universities Press). The wealth of expertise in the market research field should be used by any national planning system in dealing with consumer demand.

Market research would be assisted if there were a framework of information on age and occupation of head of household, income, type of house, size of family, education level, geographical area and so on, designed specifically for use in social and market research. If the addresses of people constituting a particular type of sample could be provided under adequate safeguards to reputable bodies, so much the better. The census of population is the indispensable basis

of such work, and it is improving. Much fuller use should be made of the government's own Social Survey, which produces such work as the Family Expenditure Survey; it is a sign of the neglect of such work that the latter was undertaken merely to provide the weights for the cost of living index.

The Social Survey already conducts a continuously running sample survey of households and this should be stepped up to the point where it provides up to date consumer information, which would be of comparable importance to the up to date production information being gathered from establishments.

The second line manufacturer is more concerned with the total demand for general types of consumer goods than for the demand for a particular make. For example, the sheet steel manufacturer does not mind what make of washing machine people buy so long as it contains his steel. More generalised types of forecasting consumer demand are appropriate here. To second line manufacturers, and still more to the suppliers of capital equipment, an isolated model of their own particular bit of the economy is impossible without the general framework of models which it is the purpose of a national planning system to provide.

The general consumer model showing the development of demand for different consumer goods and services has two principal sources of information, first the record of past demand and, secondly, cross sections of demand, showing the demand from different sizes of family, levels of income, and so on. As incomes grow and families move through the cross section so the pattern of demand changes.

the public sector

It should not be assumed that all the problems of collecting information lie in the private sector. Many difficulties in collecting information about the public sector are already encountered in controlling the pressure of demand. For

example, public expenditure is controlled primarily in financial terms with little analysis of its impact on different sectors of the economy, and its timing is erratic and uncertain from quarter to quarter. Such difficulties will have to be faced, and a much tougher line taken on the standardisation of methods of reporting activity in different government departments.

the social environment

An economic planning system of the type we are considering would have a powerful influence on the shape of society whether it is meant to or not. It is meant to. Therefore the structure of society must be well described and measured and properly integrated into the economic models. If social factors are left less well described than economic factors, then inevitably they will be overruled.

For example, the different methods of provision for old age, for large families, and for housing must all be described with the same thoroughness as the production of industry. This is too large a subject to do other in this pamphlet than to register its supreme importance.

regional problems

The emphasis that has been put on the establishment (as opposed to the enterprise) and its use of localised real resources means that the regional dimension can be prominent in the methods of analysis used. It is partly to ensure this that a regional organisation is proposed, for the collection of the prime data in the first place. This would also have the advantage of offering more direct personal contact between firms and the planners.

Since the planning system is to go down to firm level, it should certainly go to local authority level, where the attitudes of local authorities are of great economic importance. It should be possible to give

substantial help to local authorities, just as to firms, in their own planning activities.

GOVERNMENT STATISTICS

At present government statistics are organised on a departmental basis. Each firm sends information on the manpower it employs to the Ministry of Labour, on production to the Board of Trade, often through a trade association, on investment to the Ministry of Public Building and Works, and so on. Each Ministry adds up its figures for different firms and the firm itself as a decision making and production unit totally disappears. When any government department wants to see the whole circumstances of a particular firm it has to start again from scratch and get all the information from the firm with consequent delays, and ending up with no more information about the environment of the firm than the firm has itself. This form of organisation was natural enough when, with a manual clerical organisation, the only possible way of handling the information was simply to add it up and work with the traditional model of economy.

By the methods proposed here, it is perfectly possible to preserve the identity of the individual firm so that all aspects of its activities can be seen together in their mutual dependence, and against the trading background of the firm, while at the same time providing departments with all the information they want about their own concerns. To achieve this each firm would send all its information to a single statistical office instead of bits of information to half a dozen different ones as at present, and there the information would be edited, collated with previous returns, sorted, distributed and knit into various models.

reorganisation

As the present system wantonly destroys all the information about the fine structure of the economy, the logic of a changeover to a single channel of com-

munication is inescapable. Government departments are naturally sensitive about any diminution of their functions, and since statistics are the eyes and ears by which they learn what is going on in the outside world, they are particularly sensitive in this matter. The proposed reform, far from robbing them of their eyes and ears, is giving them a battery of microscopes, telescopes, amplifiers, deaf aids and even allowing them to keep their horoscopes into the bargain. They will know far more after the reform than they do now.

For the firm this approach is more convenient and is the only way by which it can be given the kind of individual attention that we have outlined. More than anything else this apparently simple statistical reform is the essential step in forging the link between the firm and the plan.

The natural quantum of information is therefore the comprehensive monthly return from establishments, monthly because this would seem to be the frequency likely to be useful for most types of information, though higher and lower frequencies could be accommodated as appropriate. In response to the monthly return from establishments, the planning organisation would send out a monthly bulletin, unique to each establishment, giving the information needed for all the purposes discussed. The information would have to be produced automatically, but its specification could be varied even from month to month if required. The whole procedure could be made convenient and easy for firms to understand.

The organisation of the system should provide for the closest possible contact between the firm and the planning and statistical office with which it communicates, and this suggests a regional organisation.

MODELS

With such sources of information available on the one hand, and a knowledge of the objectives to be achieved and the

problems to be dealt with on the other, there remains a major task of construction. An argument, or a method of argument, is needed to arrive at policies and solutions to problems using such information as is relevant and available. In terms of the logic of planning, we have the description, measurement and criteria for action. What is needed now is the method of prediction which we have already described as a set of linked models.

the social accounting matrix (sam)

The most comprehensive model or system of linked models of the economy is the Social Accounting Matrix (SAM), being devised by Professor Richard Stone and his team on the Cambridge University Department of Applied Economics Growth Project (*The model in its environment: a progress report, A Programme for Growth 5*, Chapman and Hall, 1964; Richard Stone, British economic balances in 1970: a trial run on Rocket", *Econometric analysis for economic planning*, Colston Papers 16, Butterworths, 1964). NEDC was in touch with the work at Cambridge which was not sufficiently advanced to be incorporated effectively in the first NEDC projection for 1966, but Sir Robert Shone, the Director General of NEDC, said in October 1964, at the British Computer Society conference, on the NEDC projection for 1970, "with the co-operation of Professor Stone and his team in Cambridge, use will be made of their work on SAM, in particular the industrial sector. A member of the office's staff is stationed in Cambridge to ensure this close liaison."

Also at the same conference Stone himself said of his work, "The model has now reached the working stage, but when I say this the reader should think of the aeroplane built by the Wright brothers rather than of a modern jet; it is as yet only a prototype which we are engaged in improving." It is one thing for a non-governmental advisory body like NEDC to send along a member of its staff to keep in touch with this interesting work,

but the DEA should take the matter more seriously. For the General Staff of a nation at war to send along a junior officer to keep in touch with the Wright brothers would suggest a certain lack of seriousness and understanding in the phoney war stage of the conflict.

What we have to do is to build the most effective possible planning system out of all the ideas available. In learning from SAM it is necessary to remember that it was devised by a handful of workers in a university by their own hands with virtually no supporting staff, without privileged access to data, with no control over the type of information collected or the form in which it is collected, often having to resort to heavy mathematics to interpolate data which should be measured directly, outside the stream of policy making and with no prescribed objectives or instruments of policy to provide for. In the circumstances of government a very different result would emerge.

Stone has spoken of the need for co-operation between politicians and model builders and there can be no doubt of the necessity. Without it politicians will continue to flounder and models will gather dust on library shelves. These observations are offered only as a tentative start, and far from being criticisms of SAM, are meant as a recognition that it offers the best basis on which to build.

time dimension

The Cambridge Growth Project takes a terminal year, 1970, from which a steady rate of growth is to be maintained indefinitely into the future, and then considers the transitional problem of how to get from the present state of the economy into this state by 1970. Most of the work so far has been on the "steady state" for 1970.

For the reasons already considered in discussing the NEDC projections, this was the natural starting point. But the availability of new sources, the need to provide a rationale for a wider range of decisions, and the need to provide a

framework to which other models can be attached, introduce different considerations and it will be a matter for technical discussion as to what is the appropriate organisation of the model.

The first step is probably to produce a new organisation of information which can then be made the basis of an evolving range of models. With the resources available to a national effort, the time would not seem far distant when a system of models will be needed, seeing the near future in considerable detail, both as regards classification and timing, spreading into the more distant future with less detail and more room for manoeuvre, with cross sections examined at five, ten and twenty years ahead to show the effect of the long term decisions now being taken. Different decisions have different time spans of relevance, and a framework is needed which can accommodate these different time spans. The models would form such a framework of analysis; they would not be merely a system of formal equations, and might well have different formulations for different purposes.

time span of regulators

It is good to have efficient local short term regulators—for example, of stocks of particular commodities, and employment in travel to work areas. And it is good to adapt steadily to a desirable long term state. But if the long term adaptation ignores the short term variation then it will be inefficient. This is because the long term adaptation will either have to wait to gain its information on the present "trend" state from averaging over a good deal of short term variations, in which case adaptation will be very slow; or it will have to assume that the present state *is* the "trend" state, in which case the adaptation will often lead to error. Also the long term can only be implemented by action at some stage in the present. The conclusion is that the long term adaptation must take into account the variations going on in the immediate short term, and cannot rise majestically above them. In other words,

the short term control of the pressure of demand and the long term planning of the economy must be integrated.

This supports the suggestion that a satisfactory model would spread out from the basis of present and past states into the short and long term future. It would have multiple objectives some of which would be constraints, and others levels of achievement to be maximised, with different weights attached to each. It would not be aimed at approximating to a defined state in a terminal year. This seems not only a more practical but also a politically more satisfactory procedure, avoiding the hazards of unnecessary targets. It emphatically does not avoid the sophistication of projections, since these are constantly needed for all long term decisions.

scope of regulators

The detailed picture of the short term position would make possible a different approach to the control of the pressure of demand. Instead of putting the whole load on to the control of total national supply and demand, as single quantities, the greater part of the load would be taken by maintaining the balances in several dozen subsidiary accounts. The total national account would then be left only with the task of dealing with those subsidiary accounts that get into difficulties.

The subsidiary accounts would include employment by occupation in each region; investment and the capacity of capital goods industries; consumer demand of different types and the capacity to meet each type with a limited margin of imports; and exports of particular types if by use of overseas market research it becomes possible to set targets. Incomes policy would be represented by an important set of such accounts. The target balances in each individual account would be set for the appropriate short term period ahead, and the person or body responsible for maintaining the balance would have to be given the means of maintaining it. The system of

setting financial targets for nationalised industries is a step—albeit imperfect—in this direction.

The degree of detail in the selection of accounts, and the period over which they are to be maintained should be so chosen as to make the whole system as adaptable as possible. It is not true that the system is at its most adaptable if it is controlled by a single account, since then any part of it is liable to interference from any other part as a result of a necessary control adjustment, the underlying situation to which adaptation is needed is obscured, and the adaptation interrupted. On the other hand, too fine a division of accounts, or for too long a period, imposes rigidities.

overall control moderated

The overall control of the pressure of demand would, of course, have to be maintained. As the new system built up, so the overall short term control would find itself having less trouble with particular components of demand as control was established in their own particular accounts. At the same time the overall short term control would have to moderate its use of particular regulators which previously interfered with aspects of demand now looking after themselves.

It is a matter for argument whether there are now enough degrees of freedom to control the economy within the necessary limits. This devoluted control would not in theory need any more degrees of freedom. In fact, however, the powerful model system proposed will create many new degrees of freedom, and it should be possible to make these available at a sufficient rate to provide enough room for manoeuvre, both at the devoluted levels and at the centre.

disaggregation

SAM builds from the national accounts *down*, and not from firms *up*. Because of the way SAM is put together each new sub-industry added to the model

involves an increasing amount of work as its interactions with all existing industries and other accounts have to be estimated. Therefore it is impracticable to extend the model as it stands down to the firm. To learn something from the model a firm must therefore be able to produce correlations between its activities and some nation, industry, or commodity wide variables. In this respect SAM does not differ from the NEDC projections, or the short term control of the pressure of demand, except in that it tries to get as near as possible to the firm. This separation from the firm was imposed by the inaccessibility of information about firms. The sheer volume of the information would make it quite impossible for any non-governmental body to handle the data. Any government agency doing much more than simply aggregating the data as at present would need not just the occasional use of one computer, as for SAM, but the continuous use of a battery of computers.

Nevertheless, SAM has been deliberately designed to interest firms in this type of work and to make use of any information firms can provide, and even within the limited resources of a university department a useful industrial connection is being built up.

The finest comprehensive data available for SAM was for whole industries. Consequently the production functions, that is the relations between output, employment, investment, capacity, and technical progress, could only be estimated for an industry as a whole. Information available from particular firms was used as an indication of what goes on elsewhere as well as in the firm itself, but not as a part of either a systematic sample or a total coverage of all firms in the industry.

With the data which it is proposed should be made available, a production function would be available for each establishment. If a given total production for the industry were to distribute itself in a known way over existing firms, it would then be possible to calculate the resources required to meet this production. For

example, the production could be met by the lowest cost producers; or by those spending most on advertising; or it could be shared, giving all producers a share of the market in proportion to their capacity; or it could go to producers making least use of a scarce resource like labour or imports; or to producers giving the shortest delivery; or it could be distributed by some other consideration or combination of considerations, including just habit.

developing sam

SAM, like most macro-economic studies, assumes that the distribution of production over firms in an industry is determined by the same circumstances as determine the total production, and so is not an independent variable. In so far as this is actually the case, it is only necessary to discover the rules for a particular industry to get some indication of the business which is likely to go to each firm in the industry.

It would not be possible to set industry thinking in the way proposed without firms radically altering the way business distributes itself in their industry, and the whole purpose of the new planning system would be to see that it was distributed in an efficient way. What is being proposed is not a leatherbound market sharing arrangement, nor ruthless short term competition which would lead to long term monopoly; but a systematic review within the framework of analysis provided, of how in fact things work so that the facilities of the new planning system can be used to make them work more efficiently.

Had SAM not demonstrated the practicability of large scale disaggregated model building—not to mention organised teamwork by British economists—it would have been premature to suggest the type of planning organisation which is now practicable. It is equally true that SAM is only a prototype. Its development should be an integral part of the development of the whole planning system.

Some economists may feel that SAM is already over complicated, and that it is absurd to propose a yet more complicated development. They should reflect that as a consciously designed system, SAM is far less complicated than an ethylene plant or a nuclear power station, and the more highly developed model system proposed is no more complicated. If they seek to rebut the analogy by pleading the unpredictability of economic systems, they should try designing and operating an ethylene plant. The cultural lag has left us in a position in which we are putting more thought into the physical processes of manufacturing plastic washing up bowls than we are into the management of the whole economy.

THE PLANNERS

Since the whole purpose of the system is to make diffused decision making coherent, the designers of the system must be the people who will use it. A system of technical working parties for each industry and area of the economy would therefore be set up, drawing on the most able people in the field, meeting perhaps for a full day once a week until the work was well under way, with a government statistician or economist as secretary of the working party.

A central systems working party would be needed to produce the overall concepts and co-ordinate the work. The government has hardly yet drawn on the services of the kind of person needed, and there is a great fund of goodwill and enthusiasm waiting to be tapped. The little NEDDIES were not selected to do this kind of work and it would be better to set up the technical working parties separately, though possibly in conjunction with the little NEDDIES.

As for the Government Statistical Service, it will have to be strengthened and given new life. Past difficulties in recruiting are really no guide to what could be achieved if for a time the public service became the leading place for the development and application of powerful new

ideas. Because of the essential unity of planning activity—description, measurement, prediction and criteria for action—sufficient people with the necessary ability will not be attracted into a service which deals only with the measurement aspect, as most of the Government Statistical Service has done in the past. The service should perhaps be amalgamated with the new Government Economic Service. At the same time, this same unity means that the development of planning methods cannot be carried beyond a certain point outside government and without close contact with the practical requirements of actual taking of decisions.

LIMITATIONS

The limitation in the development of planning methods is not computers. The present number of machines and supporting facilities in government is slightly inadequate for present tasks, and hopelessly inadequate for the tasks which should be undertaken, but computing capacity can be built up very quickly once it is decided it is needed, especially in so central a matter as national planning.

Nor is the limitation really people. Before the war it was said that only one or two men in the country had the physique and ability to fly the Supermarine Schneider Trophy winner, yet within a short time thousands of men were flying far higher performance aircraft. By the same token, too restrictive a view is taken of the qualities needed for planning.

Administrators in the Civil Service made a mistake in cutting themselves off from "systems" thinking, regarding computers merely as a means of mechanising existing clerical processes or as "expensive computational aids". They did not bother to get the feel of computers by learning to programme themselves, leaving this to executive class officials. Consequently they failed to get a practical grasp of possibilities opened up for policy. But this has changed.

It would be too much to claim that many administrative civil servants have yet been thinking on the lines argued in this pamphlet, but the psychological resistance has gone. The techniques needed can be readily mastered by a little of the hard work to which senior civil servants are so well accustomed, and the new ideas are easier to handle than the old.

professional experience

Economists will have a greater problem in adjusting because they have so much intellectual capital locked up in present methods of analysis. Some no doubt will be last ditchers, like the man who in response to an estimate from a very high quarter in the government with experience of these things, that a certain reform of statistics could be working within two years, mumbled, "More like 200". Even he is not likely to live that long, and most economists will be to the fore in exploiting the rich new fields opened to them. There will be plenty of work for them to do.

More important than techniques, which can be readily supplied, is experience of the world outside Westminster, of the reactions of different people and organisations, and a direct awareness of where the big increases in productivity are to be made. That is why it is essential to organise the bulk of the work of creating a planning system in working parties bringing people in from the economy at large.

While certainly more economists, statisticians and other professionally trained people are needed and should be trained, the shortage is not so great that men and time could not be found for the central task of national planning, provided the conception measures up to the task. It should also be remembered that only 4 per cent of university graduates studied economics, whereas 30 per cent studied mathematics, physics, chemistry, or technology, acquiring at least as much experience as economists of quantitative argument, which is the basis of planning. Also a greater proportion of the latter

than of economists will have had practical experience in industry.

The number of qualified scientists and technologists working in industry, commerce and applied research now seems to be four times what it was in 1945 when a Labour Government last tried to plan, and most of them are young. The number will double again in the next ten years. Even more important, though less easy to quantify, is the raising of the standard of education of the whole working population. There is consequently an order of magnitude difference in the level of sophistication at which government can now operate if it wishes to.

lack of organisation

The most serious lack is organisation, and the drive to reorganise. This must come from the politicians. The lay politician has much to gain from reorganisation. He does not really understand the arcane mysteries of how the economy is managed today, but he is very much aware not only of its overall difficulties but also of the detailed problems of his constituency and of ordinary people. A system which is easier to understand and which will enable him to work more directly on the problems which he sees and feels strongly about would be more than welcome.

Nor is Parliament itself an obstruction. Parliament and Parliamentary committees tend to be treated by governments and civil servants as an excuse for preserving the administrative status quo. It is ironic that the Plowden Committee on the control of public expenditure which was itself set up following criticisms of Treasury control by a Parliamentary committee, should have suggested that Parliament should be left with the old ineffective machinery for reviewing expenditure, while the Treasury developed new methods outside Parliamentary review. Properly used Parliament is still easily the most powerful instrument that we have.

4. conclusion

The Labour Government is committed not only to new objectives but to a new way of running the economy. Inheriting a crisis it has had to use the tools lying to hand, and the new methods of planning have yet to emerge.

The electorate, and especially the Labour Party and trade union movement, expect the planning system to be able to tackle economic problems as they see them in their factory, their town, and the goods they buy in their shops. In this they are not being naive: they have identified a host of problems which the existing economic machinery of government is not able to tackle in today's modern world.

They seek freedom and satisfaction both as consumers and in their working lives. They do not understand the present system, nor would they accept any system which cannot observe conscious priorities nor tackle the absurdities they see about them.

There is little enough time. The political pressures at home call for results, and we cannot afford another round of the trade cycle leading to a further balance of payments crisis. Abroad we have to find means of raising standards in developing countries faster than in more highly developed countries if we are to prevent the world becoming increasingly unstable, and the techniques are barely in sight to do this. We must therefore press on with the fastest possible development of planning methods.

There is at present no firmer basis for estimating the increased growth which would be possible using the methods which have been proposed here, than there is for estimating the result of most planning proposals.

However, those people with the most experience of the type of work involved in industry would be surprised if such methods did not make possible a sustained increase in the rate of growth of at least one or two per cent a year. This order of magnitude goes beyond the range of any proposal yet made by the

Government for increasing production in the medium term.

overcoming the difficulties

It is not easy nor automatic of achievement. To some, embedded in the government machine, daunted by the inherent weaknesses of statistical data and all the other manifestations of human frailty, this pamphlet will have read like a blueprint for Utopia. Yet this is a necessary indication of its practicality because it explains why such developments have not already been undertaken. There is a block in people's awareness of what is practicable.

One recalls the opinion of a Treasury official only ten years ago that men would "never" travel to the moon, and today there is no computer in the Treasury. To arrive at a balanced judgement of what is practicable it is necessary to bring together experience of industry, computing, planning systems, government and politics. With good management it is not the difficulties but the potential of these different fields which compound, each contributing to overcoming the difficulties in the other fields.

The lines of solution offered here may be inadequate: some details certainly will be. But the questions which have been raised will have to be answered, and once the questions are raised the broad lines of the solutions seem reasonably clear.

deploying resources

It has been argued that firms have not sufficient information on which to make sensible decisions, and that they cannot get sufficient information in a rapidly changing economy from the price mechanism or by private arrangement. A planning system is therefore needed.

The planning system must act at the place where decisions are taken, and that is in the firm, and not merely at the industry or national levels. Furthermore,

the influence of planning must be sensible in the light of the particular circumstances of the firm which are changing continuously.

The planning system needed is essentially an information system, collecting information from producers and consumers, processing it, and distributing to particular decision makers the particular information which they need. The primary instrument of the planning system is the giving of appropriate information, but further instruments can be used as needed, with much fuller knowledge than is now possible of their likely impact and effect.

It is not a question of making all decisions centrally, but of making diffused decision making coherent and efficient, with that degree of central control necessary to attain national objectives. Central action is also needed to create the information system and operate it.

This approach has only been made possible by the enormous increase in the number of suitably trained people in industry, and by the availability of computers. Neither factor has yet been deployed in the national planning effort.

the fruits of planning

Where will these solutions lead? First, the government will be clearly identifying itself with the lively progressive elements in industry and the country.

Secondly, it will create a coherence at the centre which has been conspicuously lacking in our national life. The few hundred leading politicians, union leaders, industrialists and administrators cannot on their own create a sense of national purpose, but they can frustrate it and are bound to do so, so long as they have no common working code and discipline which is not mere sloganising but is sufficiently powerful and practical to act as a frame of reference for difficult decisions. The code of raw capitalism is dead, but it has yet to be replaced by a new code.

Thirdly, risks in the economy, once resources are committed, will both diminish and be spread more widely, thus blurring the distinction between public and private enterprise. This is necessary if all the uncertainties attaching to a faster rate of change are to be supportable. It is not a contradiction for uncertainly before choice to become greater, while risk after choice becomes less. This is what increasing freedom means. Free enterprise can hardly object to being asked to show how it is working, and to being helped to work better. But socialists will argue further.

One approach to creating a socialist society—an odd one—would be to nationalise all industry in Northumberland, then Durham, and then Yorkshire, and so on; another approach has been and will be to take over or set up particular industries, like coal, atomic energy, and steel. Yet another is to set up certain functions and services, right across the board as suggested here, being prepared to follow where the argument leads. Because socialists believe their political philosophy is more rational, they should be quite frank and say they expect to see this rational approach leading to a more socialist society. If the Conservatives attack this approach, they will be showing continually the irrationality of their case.

Fourthly, with a more rational and objective basis for decisions in industry, the way will be open for wider participation in decisions. It will take time for the effects to work through to changes in management structure, but the changes will not stop there. The nationalised industries no more than private industry, have found the way to give workers effective participation in management, but it is difficult to see how we can claim to be a responsible society without re-awakening these early socialist aspirations towards which these planning methods would be a substantial step.

To renew, to lead, to inspire, and to liberate—as well as simply to grow—should be the aims of planning in the new economy.

appendix

the logic of planning

There is a basic logic in the idea of planning which once grasped saves much time and futile argument. The problems of economic planning are quite unique, but they are very similar to others. The problems of controlling the flight of a rocket, a chemical plant, the movement of traffic, and a teacher training programme, and of forecasting the weather, all have much in common with economic planning. And in some cases they make it easier to grasp an aspect of the economic problem which has been overlooked, and offer more powerful ideas than have yet been applied in the economic field.

description

The first step is to find some way of describing the system. This may seem a trivial problem in the case of a rocket, but it is hardly trivial in the case of the manifold and diverse activities of 50 million people which constitute the economy. What economists have done is to visualise much simpler situations—a shop, a factory, a market place or a farm. They pick ideas which are important and easily defined in these simpler situations, like output, stocks, prices, and so on. They then apply these same ideas to the economy as a whole.

The economist is using the factory or the shop as a model of the whole economy. The idea of using the directly apprehensible part of a system as itself a model of the whole or its other parts is a familiar stage in other sciences—and usually a fairly primitive stage. The Greeks had men (or anthropomorphic gods) supporting the heavens on their shoulders, and tossing thunderbolts out of bed. Dalton had atoms like billiard balls, and Hobbes had society organised like an animal.

measurement

In economics and many other sciences, the model is quantitative: the factory produces so much cloth, wheat costs so much a bushel in the market place. The quantities are crucial. Men mind what they are paid. The link between reality

and the model is the method of measurement which attaches numbers to the ideas of national output, retail prices, and so on. Without the measurement the argument with economic ideas can still go on as a kind of verbal algebra, but it only links up with reality when it comes to some quantity or “variable” that is measured, however roughly and even if only to the extent of saying whether it is going up or down.

First then comes the description, model, or concept, and then, secondly, the method of measurement of variables in the model.

prediction

The measurements usually relate to a specific time or period of time. Production means nothing unless we say during what period or up to what time. A description of a system, of the economy, gives the measurements or numerical “values” of “variables” at a particular time. As time moves on and the system changes, so the variables change, describing the behaviour of the system.

Some variables are decided outside the system, as is the weather in an economic system; others are at the disposal of the planner, like bank rate; and others, which may be called responses, are determined by the system, describing its response, like national output. The behaviour is predictable in so far as the value of responses at some future time can be predicted or calculated from earlier values of itself and other variables.

The prediction method used is sometimes a precisely defined mathematical procedure and sometimes a matter of hunch and experience, the latter particularly when there are other important factors in the situation which are not expressed in numerical terms. When mathematical methods are used there is often no uniquely appropriate method, and the selection of method is itself a matter of hunch and experience. The prediction is seldom precise, but is none the less useful

as an indication of what actions should be taken.

criteria for action

With description, measurement and prediction it is then possible to try out the results of future possible acts of policy on the model, and thence select the most favoured course of action. To do this the acts of policy must be expressible in terms of the variables used. Thus if an economic model treats "labour" as a single entity, it cannot be used to evaluate the benefits of retraining.

Finally, there must be some way of choosing between two predicted courses of events. This choice may be made by reference to some criterion, like maximum growth of production.

The logic of planning is thus built up of description, measurement, prediction, criterion and action.

tuning up

Having gone through this process of planning in a practical situation it may be found not to work as well as had been hoped, or not to work at all. The reason may be that mistakes have been made, or assumptions have turned out to be unjustifiable, or more usually both. It is almost always necessary to tune up a planning system—to make minor adjustments to its parts—to get it to work, and not only to tune it up initially, but to keep on tuning it up while it is in use. And sometimes it is necessary to change to a new process altogether—these are the leaps forward—to do something impossible under the old planning process.

The planning process must be considered as a whole, both in its original design and in tuning it up, since all its parts are interdependent. It is an invaluable experience to go into a completely unstructured situation, where there is no way of describing what is going on, no records or measurements, no one knowing what

is going to happen next or what they want anyway, and general confusion as to what to do about it. But in practice, the engineer, the administrator, politician or voter going into a new situation inherits a planning process—a method of description, predictions, criteria and policies of action. It is extremely unlikely that these will be written down and coherently argued and they will be changing as he looks for them. They are bound to be imperfect in varying degrees. His problem is to adapt what he finds.

The interdependence of the parts of the planning process, once they have been described, is obvious. For example, the description suggests what should be measured, and hides the possibility of measuring other things. What you can use as a basis for prediction depends on what you can measure. And it is no use setting up a criterion or objective of policy if there is no means of telling what acts of policy would further it.

It is never possible to say with certainty that had a different control action been taken or a different control system used the results would have been better or worse. We cannot have time over again. Not only is this of the nature of history and life, but it is also common experience in many simpler predicting situations. For example, complex chemical plant and the weather cannot be reproduced with set variations either in a different place or at a different time to test out a theory. We have to argue as best we can from unrepeatable experience. Very often a price has to be paid for experience.

A mistake may turn out to be costly, but continuing with what may turn out to be an inferior system may be far more costly. What is certain is that our capacity for sound explanation increases the more we observe about a system and the more we observe the more likely we are to have to revise our practices. It is a curious feature of the universe that somehow in this type of situation we are often able to set up predictive control systems that effect improvements. On the basis of experience we are certainly jus-

tified in this practice in formulating economic policy.

the plan

It should be noted that in this scheme of argument the idea of a "plan" as a timetable of events, part predicted, part fixed by policy, and part trusted to luck, falls into place as only one aspect of the planning process. On its own it is a nonsense. What matters in relation to any particular act of policy is that it should turn out to be the right act. It does not matter if the prediction which led to the decision to act turns out to have been not precisely right. But the better the prediction, the less likely are acts based on it to be wrong. This should be seen, not as an excuse for shoddy methods of prediction, but as a justification for the effort of predicting even though it is obvious the prediction cannot be precise.

Looking at it another way, what is important is how the immediate action affects the range of possibilities for the future. In the technical literature these possibilities for the future are sometimes referred to as the "domain of accessibility". The "domain of accessibility" is a more difficult idea to handle, both imaginatively and in mathematical terms, than a single succession of predicted events. But it is of profound philosophical and political importance, because it elucidates the paradox of planning for freedom. The role of planning is to enable acts to be taken with knowledge of their effects, and thus by deliberate and not arbitrary choice. This is accepted: it is planning *in* freedom. But now we can see how the choice can be made to enlarge the possibilities of choice now and in the future: this is planning *for* freedom. Without such planning we are, of course, continually restricting our freedom.

personalities and power

This description of the logic of planning has been in terms of a single planner or team of planners. In fact, this is very

far from being the case for any economy such as that in Britain. But as this pamphlet has tried to show, the logic of the situation remains valid if there are many independent or even competing interests at work in the planning process.

The description has also been generalised, not to say abstract, and deliberately so, because the least discussed problems in economic planning are those of logic and technique. To a Minister this may seem irrelevant when he knows very well that the real problem is one of personalities, that a particular person is being obstinate, that it must be a choice of this or that. Yet these problems of personalities and private politics exist within a framework of ideas, and it would be a mistake to suppose that personal attitudes bear no relation to what people suppose they are doing. Also it is useful to know one's own argument.

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Enquiries about membership should be sent to the general secretary, Fabian Society, 11 Dartmouth Street, London, SW1; telephone Whitehall 3077.

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