The balance of payments

or

Are import restrictions necessary?

by Dr. Colin Clark

with a foreword

by Sir Alec Cairncross

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FOREWORD

As an old pupil and friend of Colin Clark I am happy to pay tribute to his conspicuous originality and enterprise in the handling of statistics and his unfailing eye for new trends, new problems and new ways of relating the one to the other.

In this tract he shows his customary ingenuity in tackling a major problem of policy through the systematic use of statistical conjecture so that both the quantitative dimensions of the problem and the plausibility of different approaches to it can be fully exposed. The problem is to decide on policies that will simultaneously allow the economy to operate nearer to the limits of its capacity and avoid the danger that external imbalance will thwart an otherwise sustainable expansion within those limits. One powerful school of thought, uniting the Cambridge Department of Applied Economics and the T.U.C., has argued for the limitation of imports by quotas on the grounds that this would be the only way to prevent a sudden and dangerous surge of imports if demand were allowed to expand too fast. A rate of expansion that made inroads into the unutilised capacity now reflected in industrial stagnation and unemployment might well have these consequences. The alternative course of meeting this danger by further depreciation of the pound would, it is argued, be ineffective because it would be slow to operate favourably on the balance of trade and would give an immediate, undesirable and unnecessary fillip to inflation by raising import prices.

Colin Clark grasps both horns of this dilemma, pointing to the damaging international repercussions of import limitation on the one side and to the eventual effectiveness of exchange depreciation on the other. He argues that depreciation will not work when there is excessive pressure on capacity but that this obstacle is no longer present. In any event it is doubtful whether further depreciation (except perhaps to $1.60 to the £) is required even if prices rise in Britain in relation to world prices. Price relationships are already favourable to an improvement in the balance of

payments and a surplus should emerge and become substantial by 1980. This conclusion does not rest on a large further contribution from North Sea oil but assumes only that Britain's fuel imports are replaced with no additional earnings from oil exports. The balance of payments surplus would also be compatible with a return to normal capacity working in the British economy, taking the third quarter of 1974 as representative of normal capacity operation: provided always that the various elements in final demand are kept within the necessary limits, and that the rest of the world also resumes normal capacity operation. There is simply no need, therefore, to contemplate resort to import quotas.

These conclusions rest on elaborate calculations which are not always easy to follow. The growth in output between 1975 and 1980 is assumed to exceed the rate of expansion in capacity (3 per cent per annum) by the amount of slack to be absorbed (about five per cent in 1975). Separate calculations are then made for food, fuel and materials, both in relation to import requirements and to the allocation of productive resources. Imports of these items are taken to fall from £4,350m in 1970 to £4,250m in 1980, measured at 1970 prices but with an increase of about 25 per cent to allow for a change in the terms of trade. Imports of other goods and services are then estimated on the basis of input—output data for 1970 by deducting 40 per cent from the estimate for total imports and assuming that this percentage corresponds to the volume of food, fuel and materials imported in 1980 as it did in 1970 (in spite of the assumed cessation of oil imports). At the same time, the claims on productive capacity (after making a deduction for agriculture, mining, etc., that is taken to correspond to home-produced food, fuel and materials) are allocated to capital formation, current public expenditure on goods and services, consumers' expenditure and exports, with the last two of these serving as competing residual claimants. The purpose of this part of the calculation is to establish that the estimates for the balance of payments that follow are consistent with normal capacity operation of the economy with reasonable levels of investment and public expenditure.

The final step is to examine what the surplus on current account would be (at 1970 prices) on various assumptions as to the rate of expansion in world trade, the behaviour of relative prices, the elasticity of demand for British exports, and the impact on British imports of changes in the competitive position of British manufactures. Three rather arbitrary targets for exports are selected in order to establish just how competitive British exporters would have to be in order to meet them and how the balance of payments would be affected. In Table H the results are summarised and if they can be accepted the outlook is promising indeed. For example, it is implied that in spite of a slowing down in the growth of world trade in manufactures British exports might by 1980 be almost double British imports (at 1970 prices) in spite of a further rise in British prices in relation to world prices. Another puzzling result is that the U.K. balance of payments appears to benefit from a *slower* expansion in world trade. But in this case the explanation is straightforward. A faster expansion in world trade would make it easier to achieve the export target and would therefore be consistent with a loss of competitiveness in comparison with less favourable world conditions. This in turn would make imports more competitive so that, with exports fixed *a priori*, the balance of payments would deteriorate.

Colin Clark recognises that his use of 1970 relationships may make his results too favourable, and I suspect that this is so, especially for imports of manufactures. He emphasises, too, that his calculations imply strict control over other claims on resources, especially government expenditure and house-building, as well as "a transfer of resources into manufacturing production at an unprecedented rate". Perhaps one should also stress the need to restrain consumption since the claims made by consumers may offer the most serious competition in the allocation of resources.

Whatever readers make of the arithmetic and the theme, the whole pamphlet is full of interesting reflections. It does an important service in insisting that export performance does respond to price relationships although more slowly than in the past; and it introduces a welcome note of optimism into our picture of the future of Britain's trade.

A.C.
St. Peter's College, Oxford

September 1977

SUMMARY

Some politicians are now claiming that the only way to restore the British economy to full employment, without budget deficits, is not merely a temporary, but a drastic and permanent restriction of imports. In this view they are supported by the "Cambridge School" of economists.

The advocates of this policy have apparently not given any consideration to its expected effects in international politics, leading probably not only to Britain's expulsion from the European Economic Community, but also to embittered relations with many other foreign powers.

Behind these views lies an essential defeatism about the possibility of British exports showing a substantial response to more competitive prices, whether brought about by keeping British costs down in relation to those of competing countries, or by exchange depreciation. When we look at the actual evidence we find that it is much more encouraging. The qualification is that the relative price changes require a long time before they have their full effect on the volume of exports; whereas devaluation of the currency causes an immediate rise in the price of imports, with consequent temporary balance of payments difficulties. A firm seeking to export a product which has not previously been exported, even though the ultimate prospects appear profitable, nevertheless has to spend a good deal of time on making market surveys, appointing agents, organising credit etc.

A further important consideration is that even if relative prices appear favourable, British industry will not substantially increase its exports if it is already working close to full productive capacity. Detailed studies of international competition in the car and chemical trades have shown that large export gains are only attained by countries which have a reserve of productive capacity. Analysis of available records shows that the complete effects of a change in relative prices in international trade may take as long as three or four years to show themselves. By the time this period has elapsed however a 10% improvement in relative prices, if sustained, may ultimately lead to more than a 30% increase in export volume. The best prospects are for exports of semi-finished rather than finished manufactured products, and of services (tourism, financial services etc).

Productive capacity in British industries capable of producing exports, or competing with imports (i.e. manufacture, and a small range of service industries) depends principally upon their labour supply. Shortages of skilled and experienced industrial labour are not incompatible with high figures of unemployment when the latter consist largely of unskilled, residents in the depressed areas, etc.

Traditionally British imports consisted predominantly of food and raw materials; but now two-thirds of all imports consist of manufactures and services. In volume, food and raw material imports are almost the same as they were twenty years ago, increases in demand having been met by the rising productivity of British agriculture, and by the increasing skill of industrial scientists in economising raw materials. Fuel imports rose rapidly up to 1973, when they constituted 7% of all imports. It is expected that North Sea Oil will soon completely displace fuel imports, though it is unwise to count on substantial exports. If higher fuel prices persist there are grounds for expecting substantial economies in consumption.

Imports of manufactures and services have, in the last ten years, risen considerably more rapidly than was to be expected from rising internal demand for consumption goods, capital goods, etc; due to unfavourable relative prices, and excessive pressure on capacity in British industry—as was indicated in the recent book *Britain's Economic Problem: Too Few Producers*, by Robert Bacon and Walter Eltis.

The following figures quoted are all measured at 1970 prices (the basis used by the Central Statistical Office for comparisons of production, income etc). Exports (including exports of services) are now running at the rate of about £15.5 billion per year, only a little higher than in 1974. Regarding future export prospects, a table is prepared on alternative assumptions showing the inputs of manufactures, services and imports required for various outputs of public expenditure, fixed capital formation, exports and consumption; taking into account also the prospect of continued adverse terms of trade (import prices higher than export prices, in comparison with the base year 1970). If further growth of public expenditure, and of public and private expenditure on housing, are restricted, an export target for 1980 of £20 billion at 1970 prices is possible, though only if real consumption is prevented from showing any significant rise above 1973 level. An export target of £18 billion at 1970 prices is more feasible. Even if import prices remain high in relation to export prices this would still leave a highly positive balance of payments, making possible large repayments of external debt.

So much for the capacity for producing British exports; but will there be markets for them? From 1950 to 1974 world trade in manufactures was expanding (in volume, not in money value) at a rate of about 8% per year, a far faster rate of growth than ever before, and much faster than the rate of growth of world manufacturing production (i.e. world manufacture was becoming more specialised, and an increasing proportion of output has been traded internationally). Britain had been obtaining a rapidly declining share of world sales until 1967 (the year of the first large devaluation of the exchange rate), after which the British share stabilised. There are conflicting views about the prospects now for world trade in manufactures. Some think that it will quickly resume its interrupted pre-1974 rate of growth; others however think that, at any rate in recent years, this rate of growth depended on an abnormally high world rate of investment. On this theory a lower rate of recovery of only 6% per year from the 1975 low point may be projected. Calculations are made for the different export targets, and the high and the low estimates of the future movements of the total volume of world trade in manufactures, and

with the exchange at $1.60. These calculations show that some further rise of British prices in relation to those of competing manufacturing countries is permissible, though not at the rate at which our prices are now rising.

Even to attain the more moderate target however an unprecedentedly rapid transfer of resources into manufacturing production will be necessary.

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"If a country's import propensity is higher than the proportion of its exports to its full employment output, effective demand will be insufficient to secure full utilization of resources, unless demand is propped up by means of budgetary deficits . . . If we eliminated the artificial prop to demand through public deficit spending, production and employment would fall until imports no longer exceeded exports. But we would have two to three million unemployed."

So writes (*The Times*, 12th October 1976), Lord Kaldor, the leader of the "Cambridge School" of economists, actively pressing upon the Government and Parliament their advice to the effect that the only solution for Britain's economic problems is not merely a selective, but a drastic all-round restriction of imports.

What the consequences in international politics of such action would be seems to be a problem outside their ken, or to what extent it would provoke retaliation, or even whether it is compatible with Britain's continued membership of the European Economic Community.

Lord Kaldor poured scorn on his opponents who have "apparently never heard of the foreign trade multiplier". "The multiplier", i.e. expected subsequent additional movements consequent upon increases or decreases in public or private investment, foreign trade balances etc is now a commonplace of elementary economics teaching. This is to be regretted; because, while such additional effects undoubtedly do take place, it is with substantial time lags, and in a far more complex manner than taught to students. I took an active part in the initial discussions which led to the birth of "the multiplier" (in an article by R. F. (now Lord) Kahn in *Economic Journal*, June 1931)—and I hope to be present at its burial.

Fundamental to Lord Kaldor's position is the conviction that there is no significant price elasticity in Britain's international trade i.e. that changes in relative prices in Britain *vis-a-vis* prices in competing industrial countries (whether through actual changes in prices, or through changes in the exchange rate) are expected to have little effect on the volume of exports, or the volume of imports (even imports of manufactures and of services, allowing that the demand for imported food and raw materials may be price-inelastic).

"I myself was a strong advocate of devaluation", Lord Kaldor continues. At the time it was indeed an open secret that Lord Kaldor did urge this policy upon the Wilson Government in 1964, in direct opposition (at that time) to his

fellow economic adviser, and that Sir Harold Wilson decided against devaluation with such determination that he would not even allow the word to be mentioned in official documents. But Lord Kaldor goes on to explain (in a somewhat superficially written paragraph) that he has now quite lost faith in the efficacy of devaluation, after observing both British and United States experience.

He concludes however with a perfectly justifiable criticism of the Government's present attitude. If indeed they do believe that export and import demand in British foreign trade is price-elastic "they should not have panicked in the face of the continued depreciation of the pound: they should have welcomed it".

There is some uncertainty about the extent to which the Government (through the Bank of England) attempted to prevent the depreciation of the sterling exchange. There are some indications that they made such an attempt initially, but desisted after they had found that the volume of sterling sales was going beyond their resources.

What is now somewhat obscurely referred to as "the J Curve" has become a matter of common knowledge, i.e. that a devaluation may be expected to have an immediate adverse effect on the balance of payments, through raising the price of imports. The converse effect, in raising the quantity of exports, and also in reducing the quantity of price-elastic imports, is delayed for a considerable time.

As against Lord Kaldor's extreme pessimism, we now have the extreme optimism of the National Institute Economic Review*, which forecast that the balance of payments on current account might move into surplus as early as the second quarter of 1977, largely through a favourable movement of the terms of trade.

The essential criticism of Lord Kaldor's analysis, both of British and of United States experience, is that he has not made sufficient allowance for time lags. He has also shown an insular tendency to ignore the large quantity of international evidence now available, particularly some excellent studies sponsored by the International Monetary Fund, which show that there is indeed a high price elasticity in international trade in manufactured goods.

We must of course specify the elementary condition that the relative prices whose effects we are considering persist throughout the period. If it is judged that the relative prices and exchange rates which we are considering will (unavoidably or avoidably) lead to a substantial "feed-back" on wages, then the elasticity relationship will of course not hold.

We must distinguish between two factors. We may first make a straight price comparison. But we should also observe, if we can, current comparative pressures on productive capacity in competing industrial countries. The industrialist who is working close to full capacity, while his overseas competitor is not, will probably quote higher prices than his competitor; but in addition he may offer delayed delivery, greater uncertainty, quality defects, absence of discounts, of after-sales service etc—these are all factors which do not show up in a crude price comparison.

* November 1976, page 11.

These factors, as between international competitors in international export markets, were analysed for two leading trades (motor cars and chemicals) in a highly original study by Artus*. Comparative pressures on capacity were found to be clearly significant. A 10% approach towards fuller capacity working, pressure on capacity in competing countries remaining unchanged, leads, other things being equal, to a 3-4% decrease in volume of export sales. The effects of these relative pressures on capacity show themselves with a long time lag, of 9-12 months. Sir Alexander Cairncross** made a tentative suggestion that decreased pressure of internal demand might lead to increased exports only after a time lag of nearly two years.

The workings of simple price elasticity (i.e. assuming that relative pressures on capacity are the same in two competing countries, but that the prices that they quote to international buyers, after allowing for any changes in exchange rates, are different) appear to operate with even longer timelags.

If allowed a sufficient number of years in which to perform its full operation, price elasticity in international trade in manufactures can be very high, according to some estimates.

Junz and Rhomberg† reviewing a large quantity of international evidence, think that the general average elasticity of demand for manufactured goods in world trade might be about 3, rising to 5 if a longer period of time were taken into account.

Long time lags are understandable, particularly in the case of a firm not previously engaged in export trade, or of a product not previously exported. Conducting a market survey, appointing agents, negotiating credits, providing in some cases for after-sales service and stocks of spare parts all require time. Multinational companies, whose internal transactions now constitute a substantial (and very rapidly growing) proportion of all international trade, will be able to make such changes a little more rapidly, indeed are already beginning to transfer to U.K. some processes whose cost has now become lower here than in competing countries.

"Most price effects take place within two to three years" was Artus's conclusion‡.

Bacon and Eltis first distinguish "service industries" and "manufacturing" (the latter including construction): but in another part of the book they distinguish "marketable" (implying internationally marketable) from "non-marketable". There is of course danger of confusion here, because the two classifications are by no means the same thing. For example, tourism, a service industry, produces large international sales; not to mention some activities in banking, insurance etc.

The London Business School§ find relative international and U.K. prices and exchange rates showing statistically discernible effects on the volume

* International Monetary Fund Staff Papers, July 1970.

**Private communication.

† International Monetary Fund Staff Papers 1965 pp 258-9.

‡ International Monetary Fund Staff Papers November 1975 p 637.

§ Econometric Forecasting Unit, Relationships in the Basic Model amended as at 27th August 1976 (Appendix to discussion Paper No. 34) page 9.

of exports over 15 quarters (3¾ years). Still longer time lags are found by Hutton and Minford• with some final effects showing as late as the 24th quarter, the maximum effects being at the 9th and 10th quarters. Questioning this conclusion, and attempting to fit a shorter time lag, gave, they found, a worse statistical fit. Taking estimates of price elasticity in chronological order, Rhomberg‡ estimated that imports into the United States from Western Europe (i.e. predominantly manufactured goods) had a price elasticity of 2.1. Duffy and Renton§ estimated price elasticity of demand for U.K. manufactured exports at 2.5 (The Hutton-Minford paper gave an elasticity of 1.5).

Artus, in his 1975 paper studied the effects of the British 1967 devaluation, with the effects of all other disturbing economic variables as far as possible eliminated, and found the following elasticities.

	Imports	*Exports*
Semi-finished manufactures	3.4	2.5
Finished manufactures	1.0	1.4
Combined (weights as in 1967)	2.25	1.9

It is interesting to see that it is in the field of semi-finished manufactures that the best opportunities appear to arise.

He concluded however that actual demand elasticities were probably above his estimates because of: (i) large observational errors; (ii) the extent of aggregation of classes of commodities, though improved, being still crude. For travel services he found an import elasticity of 2.2 and an export elasticity of 1.7. For other "invisibles" elasticities may be higher.

Analysing from the angle of U.S. import volume elasticities in respect to changes in foreign prices, holding constant U.S. export prices and non-price variables, and covering the period of dollar revaluations which began in 1971, Ahluwalia and Hernandez Cata* found the following price elasticities.

Food	*Raw materials (not fuel)*	*Automobiles and parts*	*Other manufactures*	*Total*
1.04	1.23	3.8	1.9	1.95

• A Model of U.K. Manufactured Exports & Export prices. Government Economic Service Occasional Paper No. 11, reprinted by Department of Economics, University of York, page 26.

‡ International Monetary Fund Staff Papers, March 1968.

§ Applied Economics, No. 3, 1970.

* International Monetary Fund Staff Papers 1975 page 819.

The London School of Business, after their extensive econometric analysis, concluded that price elasticity of demand for British exports, given time to show its full effects, was over 3.

Huddle* made the important point that most estimates of price elasticity in international trade, obtained by conventional econometric methods, suffer from a downward bias, because shifts in supply are generally positively correlated with shifts in demand.

There had been a tendency—not only on Lord Kaldor's part—to analyse this situation solely in terms of demand. Hutton and Minford (page 33) did consider however that the supply of exports might have been constrained, in the first place by slow growth of capital capacity, but more immediately in the short run by domestic demand for manufactures, to which exports responded with a high elasticity of 1.6.

Attention was drawn dramatically to the supply problem in a recently published book**. Too high Government expenditure, the authors contend, and also the additional private expenditure provoked by Government subsidies and by transfer payments, have had the effect of creating an excessive demand for the products of "service industries" (using this term in the very broad sense of all industry outside agriculture, mining and manufacture). The products of service industries (with a few exceptions) cannot be imported. So demand for these first has to be satisfied, leaving insufficient productive resources for exports (which predominantly consist of manufactures).

It is this deficiency which is also responsible for sucking into the British market an abnormally increased flow of imports of manufactures. "Public goods" represent a more rapidly rising share of the national product if we measure them by the labour and other inputs devoted to them, then if we measure them by output—in other words, the prices of public goods are showing a marked rise relative to those of other goods and services. This disparity principally arises from the large component of building and other construction in public goods. This will be considered below. Regarding current expenditure, the principal component in the public sector's rising relative price consists in the remuneration of public employees—a matter within Government's control.

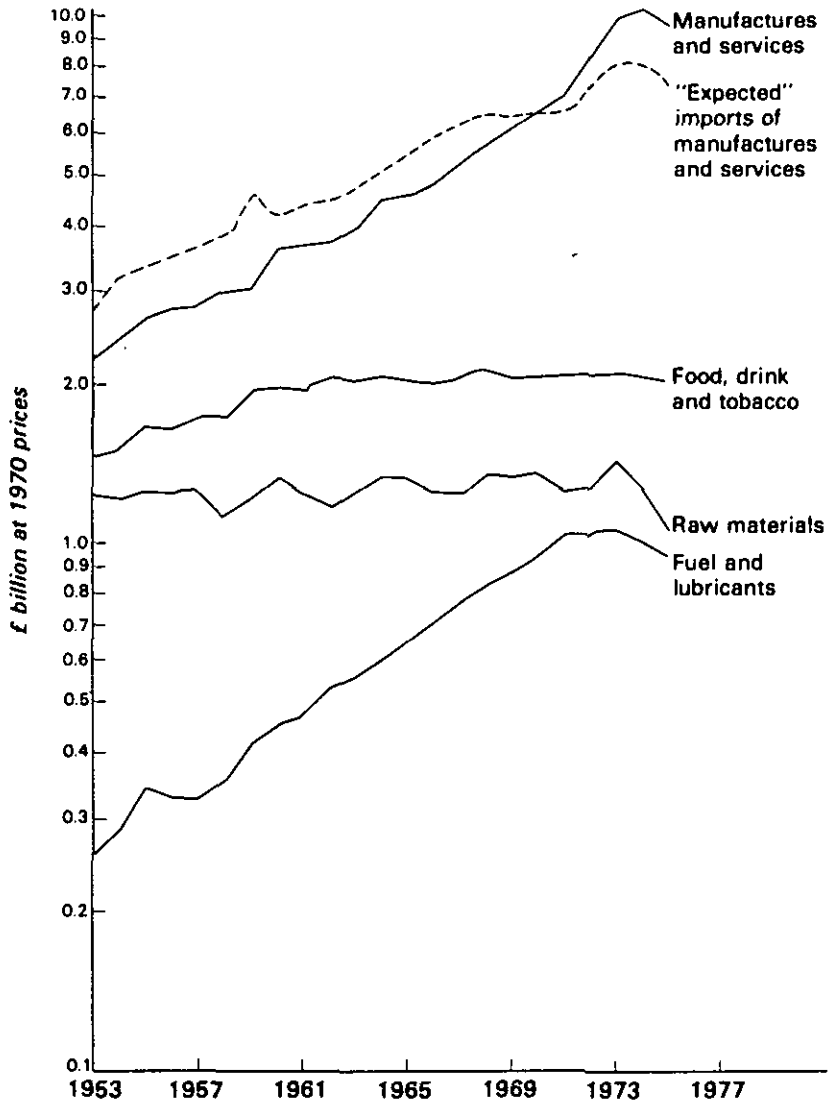
In round figures, imports in 1975 amounted to £22 billion of goods and £6.3 billion of services (the latter do not include profits and interest paid abroad, to the extent of £2.5 billion). The services imported include some governmental activities, but also substantial services of shipping and other transport and communication facilities. They are more appropriately classified with manufactures rather than with basic materials.

With all figures now subject to rapid upward price movements, we wish to see what is happening, so far as we can, in real terms, i.e. at an unchanged

* Oxford Economic Papers, July 1970.

** *Britain's Economic Problem: Too Few Producers*, Robert Bacon and Walter Eltis (Macmillans, 1976). See also follow-up by Eltis in *Lloyds Bank Review*, October 1976.

Diagram I
PATTERN OF IMPORTS
1953-75



price level. It is most convenient to re-express all our figures at prices of the year 1970, the base date chosen by the Central Statistical Office for all its conversions. Imports in 1975 re-expressed at 1970 prices amounted to £13.50 billion (of which £3.54 billion consisted of services).

We may first examine a diagram of the composition of imports, in real terms, i.e. all measured at 1970 prices (see Diagram I).

It is clear from the diagram that the situation now is very different from that of the 1950s. Imports of food and raw materials were then predominant, but now two-thirds of all imports consist of manufactures and services. Total demand for food, drink and tobacco (in volume terms) has been rising at the rate of only 1% per year—as incomes rise most of the increase is spent on other objects. The increase in demand in this sector has been fully met by the gradual but steady (subject to weather fluctuations) increase in the output of British agriculture. The volume of food, drink and tobacco imports has been practically unchanged since 1959, and shows every sign of remaining so.

The rise in fuel imports appears spectacular on the logarithmic scale diagram; but at their maximum in 1973 they amounted to just over £1 billion at 1970 prices, or 7% of all imports. This did not represent any great increase in aggregate demand for energy. As is well known, it principally represented the progressive displacement of home-produced coal by imported oil. Throughout the period up till 1973 oil showed increasing advantages over coal in cheapness *per thermal unit, quite apart from its other advantages in ease of handling.* In fact, gross energy consumption per unit of real gross national expenditure (all forms of energy being taken into account) up to 1973 was falling at an average rate of 1.5% per year. Since 1973 it has fallen more rapidly. While the modern world could not live without energy supplies, it is a serious error to regard the co-efficients of energy requirements as fixed. In almost every form in which it is utilized, energy can be saved, if there is sufficient incentive, by more skilful choices of process and of design of equipment and buildings. A recent thorough study based on United States inter-industry comparisons indicates a price elasticity of 0.5 for industrial energy usage i.e. other things being equal, a 2% rise in the price of energy relative to other prices is expected to induce, in time, a 1% reduction in its industrial consumption.

Besides food, drink and tobacco, and fuel, there remain a number of other raw materials, derived from farm, forest and mineral sources. It will be observed that the volume of these imports is now actually less than it was in the 1950s. Here again it is entirely mistaken to use fixed co-efficients of demand. Consumption of these materials, relative to manufacturing production, has been falling fairly steadily at a still higher rate than consumption of energy, namely an average of 2.2% per year. Similar results have been found in other industrial countries. Engineers and chemists have shown extraordinary skill in devising processes which economise natural raw materials, or in replacing scarcer by cheaper materials. Here again a stationary or slightly declining level of import demand is to be expected.

It is now necessary to explain the "expected" imports of manufactures and services, shown on the diagram. Up to 1968, it will be seen, actual imports were moving in fairly close proportion to "expected"; since then a rapidly widening discrepancy has appeared.

It is, of course, never possible to present a complete "expectation" of any economic variable. However, certain of the principal factors influencing it may be isolated.

First there is the "expectation" of real imports arising from the growth of the various components of real national expenditure. Analysis is made in terms of "final expenditures", inclusive of the import demands also created by the "intermediate" goods and services used in their production. "Final expenditures" consist of:

1 Consumers' Expenditure
2 Public Authorities' current expenditure on goods and services
3 Gross domestic fixed capital formation (both public and private)
4 Exports of goods and services

There is also a minor component, namely net additions to stocks. While this may show significant short-period movements in relation to rises or falls in imports, in most years this is small, sometimes negative. For present purposes it can be omitted from the analysis.

The direct and indirect demands which these various forms of final expenditure create for imports, and also for various types of production, are shown in the official input-output tables under the heading "Industrial Composition of Final Expenditure in Terms of Net Output"*. As the year 1970 is taken as the base for index number of prices, output etc it is best also to take it as the base for our input-output analysis. Table A reproduces the figures.

TABLE A
Industrial Composition of Final Expenditure in terms of net output 1970

	Percentages Forms of Final Expenditure			
	Consumers' Expenditure	*Public authorities' current expenditure on goods & services*	*Gross domestic fixed capital formation*	*Export of goods and services*
Agriculture, forestry fishing, mining, quarrying	4.5	1.3	1.7	2.3
Manufactures	15.9	13.9	33.6	40.5
Services (i.e. all other production)	41.5	74.4	39.8	29.9
Imports	17.6	9.7	21.3	20.9

These results are obtained by an immensely complex process, which would not have been possible in pre-computer days, of tracing intermediate goods and services involved in the production of other intermediate goods and services, and so on, to the bitter end.

The columns do not always add up to 100 (1) because expenditure

* Figures for 1970 published in *Economic Trends*, April 1974, repeated in April 1976 issue.

(particularly consumers' expenditure) contains substantial elements of payments of indirect taxation (less subsidies) which do not represent demand for the product of any industry, or of imports; (2) a small part of demand is met by using scrap materials, which likewise do not represent current output of any industry (3) and some Government services are paid for by fees.

These co-efficients for quantities of imports (of all kinds) required for each unit of four different types of final expenditure are ascertained at 1970 rates. From these are subtracted the imports (at 1970 prices) of food, drink and tobacco, fuel and raw materials (shown in Diagram I). The domestic output of agriculture, forestry, fishing, mining and quarrying combined up to 1972 (see Diagram II) exceeded that "expected" from the 1970 input-output relations, thus affecting import requirements.

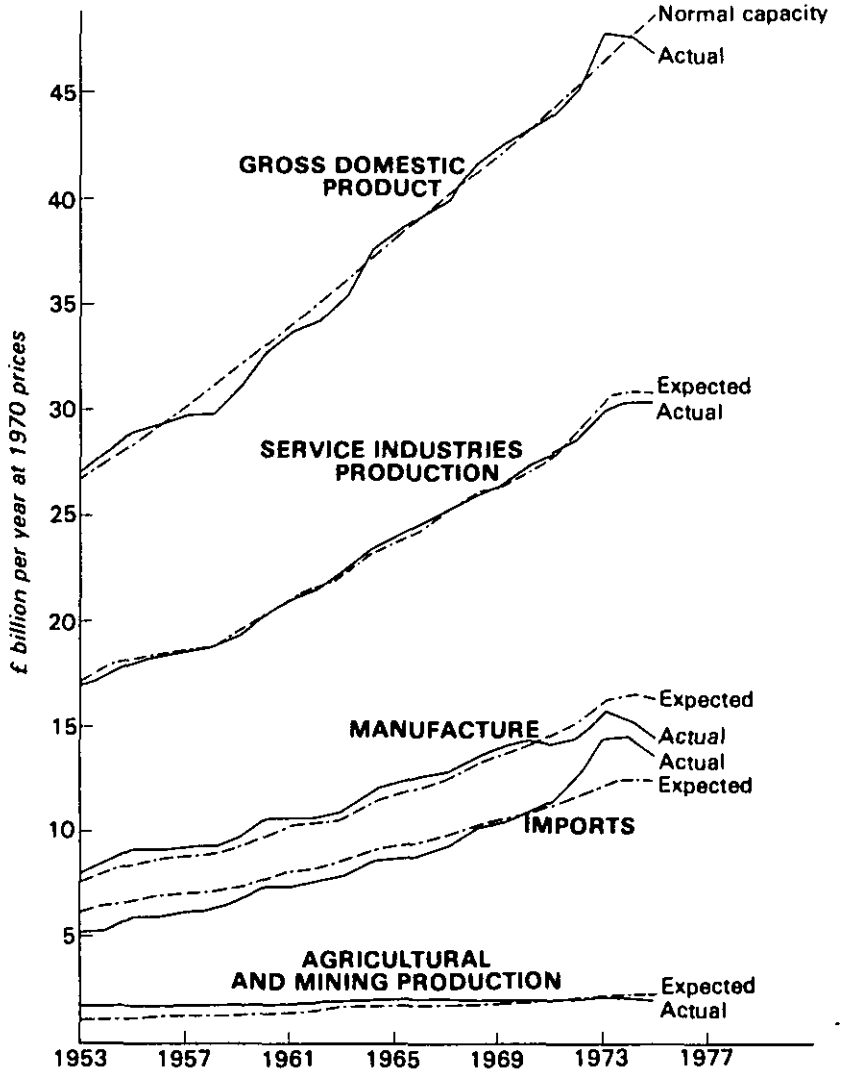
A further adjustment was then made for price elasticity (detailed methods will be explained below in connection with exports). When, for instance, British prices were high relative to those of the rest of the world (1970 being taken as a base for index numbers) we would expect imports of manufactures and services to be higher on this account. A price elasticity of 3 is assumed, subject to time lags (Later alternative calculations are made on an assumed price elasticity of 2).

Expected demands for products of other industries, and the whole gross domestic product (all at 1970 prices) are shown in Diagram II. "Normal capacity" is also shown. It should not be too difficult to secure agreement to the propositions that the rapid rise in real product in 1973 took it somewhat above "normal capacity"; while it is equally clear that it was far below normal capacity in 1975. But the actual measurement of normal capacity has proved to be a real bugbear for econometricians, throughout the world. The most primitive method is to examine past peaks of production, assuming that each represented full utilization of capacity, and then to project a line drawn through the peaks.

There is however no justification for saying that each peak necessarily represented full utilization of normal capacity, rather than over-utilization, or possibly under-utilization; and indeed there was also often difficulty in deciding which points constituted peaks which should be included in the measure. This method is still, I regret to say, used by prominent econometricians, both in Britain and the United States. A more refined method, now used by one of the leading United States econometric forecasters, is to consider the net stock of industrial capital, stringently written down for obsolescence, as a valid measure of productive capacity. It is however subject to the important qualification that the limitations on productive capacity which in fact confront industrialists are frequently due, not to lack of capital equipment, but to shortages of skilled and other key labour requirements. Labour requirements are now so specialised that it is certainly not permissible to point to the total number of registered unemployed, and to regard them as an indication of unused industrial capacity.

The method used here attempts a somewhat greater refinement. When production is above normal capacity we expect, and observe, distinct rises in prices, costs and profits; and conversely when it falls below. Likewise, subject to a time lag of about a year, an abnormally high pressure of production on

Diagram II
EXPECTED AND ACTUAL OUTPUT IN THE UK
1953-76



capacity will be reflected in increased imports and reduced exports; and conversely. The most sensitive and immediate detector of changes in the level of production in relation to capacity is given by the movements of profits, measured as seasonally adjusted gross operating surplus, in the predominantly private sectors of the economy, i.e. omitting the predominantly nationalised sectors of mining, public utilities, railways, road passenger transport, scientific and professional services, and also agriculture and residential rents, incomes in these two latter sectors being likewise principally determined by political decisions. Stock appreciation is excluded, and also the labour component (imputed at the per head average of all wages and salaries) in the incomes of the self-employed. (Some of the data are only available annually and have to be interpolated to quarters). These are compared with the amounts required to give a normal return on the replacement value of the net capital stock used in these industries (Diagram III). The methods of estimating net capital stock (by the perpetual inventory method) and the normal return on it are given in a text which will be published shortly. Normal money return per unit of real capital is estimated to decline in relation to money wages in accordance with a capital-labour substitution function, the capital-output ratio (except for cyclical fluctuations) being approximately unchanged over this period.

From diagram II it is seen that output apparently rose above normal capacity in 1955-56, in 1964-65, 1968 and 1972-73, and was below it at other times, outstandingly so in 1975-76 (The extreme low point in the first quarter of 1974 was of course due to the coal strike).

Application of these methods led to the conclusion that normal productive capacity was rising at the rate of only 3% per year before 1965, and 2.5% per year from 1965 to 1975.

The stock of capital equipment of course played an important part in this; but the principal factor in determining these rates of growth of productive capacity appears to have been labour supply. Demographic data were not in fact used in preparing these estimates of capacity; but they do provide an independent confirmation of them. Figures of "labour force" reported by the Department of Employment do not tell us much. Instead of growing steadily, labour force visibly swings with employment. There is a large margin of workers, particularly women, and older men, who look for employment when it is fairly easily obtained, and drop out of the apparent "labour force" when it is not.

Estimates of "normal" labour force can be obtained from the demographic age tables by applying to each group expected "labour force participation rates" obtained by interpolation between Census results. Between 1951 and 1971 Census results show substantial declines in labour force participation by older men, and by male and female adolescents, with great increases for women over the age of 35.

The results in Table B must still be regarded as theoretical—the 1951-71 trends of increase or decrease in labour force participation rates may be accelerating or decelerating. Many (not all) economists who have studied the labour market consider that many elements in the labour force have a negative supply function i.e. that rising real wages (as in recent years) may be expected to reduce labour supply.

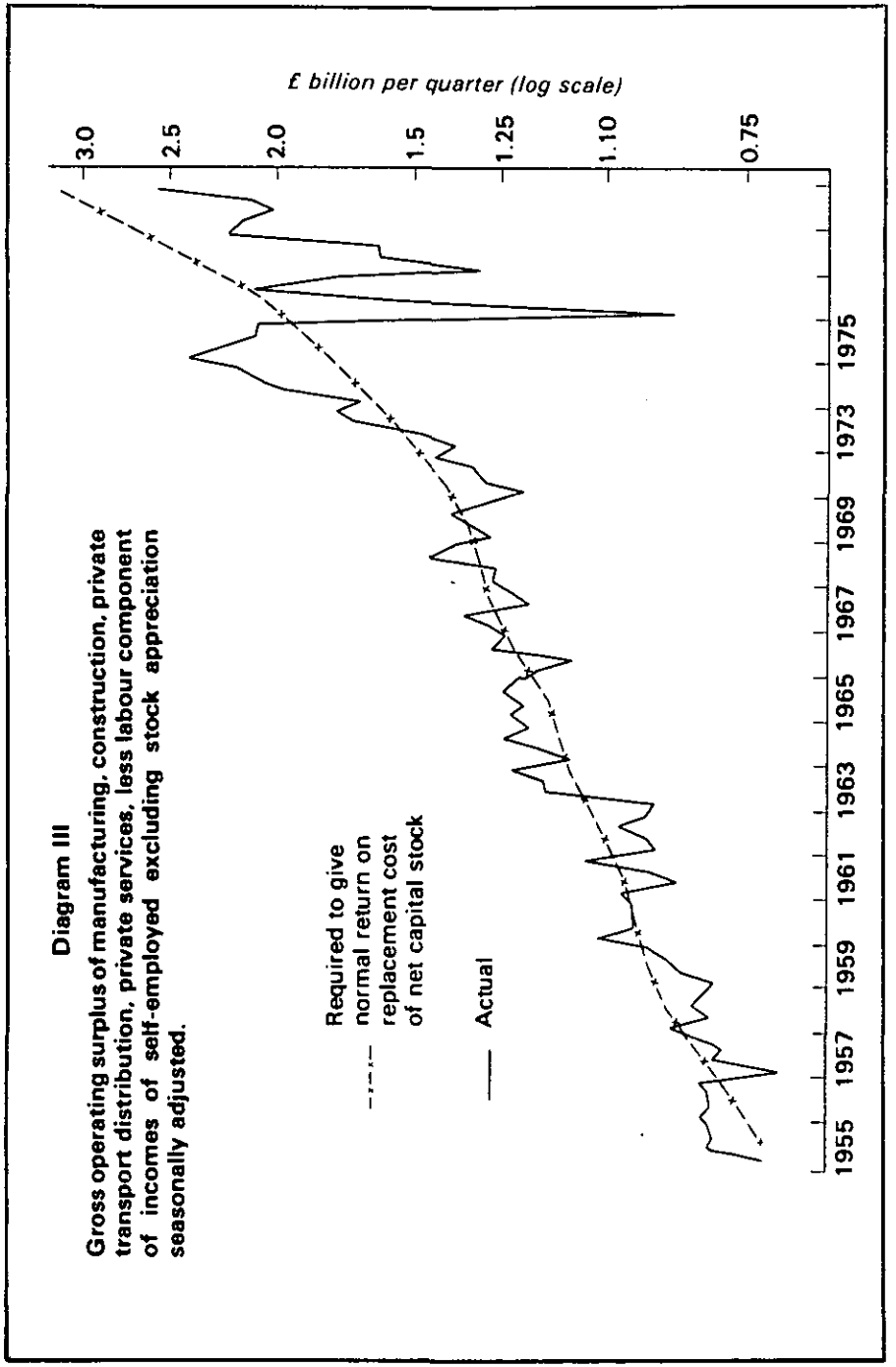


TABLE B
"Normal" UK Labour Force Estimates (millions)

	1955	*1960*	*1965*	*1970*	*1975*	*1980*
Males	16.20	16.37	16.68	16.55	16.46	16.53
Females	7.48	8.01	8.65	9.10	9.48	10.00
TOTAL	23.68	24.38	25.33	25.65	25.94	26.53

The fact that employment (including self-employed and the Forces) fell from 25.22 to 24.99 million between 1965 and 1973, must not be taken as indication of the existence of unused capacity in 1973—there fairly clearly was not. The rise of unemployment from 340,000 to 600,000 between these years must be regarded as "structural".

It is seen that the potential labour force, measured in this manner, rose by 7% between 1955 and 1965, but by only 2.4% between 1965 and 1975, with the male labour force actually declining.

Owing to changes in the demographic structure of the population it may be expected that this rate of increase may accelerate, but only to about 2.8% per year.

Labour supply was further reduced by increasing average length of holiday*, and by shorter working hours.

The demographic estimates show a slight increase in the estimated rate of growth of labour force between 1975 and 1980. Assuming, without analysing the evidence, that there will also have been some improvement and modernisation of net capital stock, growth of capacity for this period is estimated at the slightly higher rate of 3% per year.

Diagram III shows that after recovery from the 1974 coal strike, the secondary peak in the third quarter of the year represented approximately normal capacity output. Gross domestic product at factor cost (mean of two methods of measurement) stood at an annual rate of £48.6 billion at 1970 prices during this quarter, indicating capacity production of £49.7 billion for 1975 and £57.6 billion (3% per year increase) for 1980.

There has indeed been widespread dissatisfaction with the slow rate of growth of capacity, and numerous unsuccessful proposals have been made for increasing it. In the 1950s the simple assumption was made that all that was needed was increased industrial investment. This idea was criticized† on the grounds that an important factor constraining capacity might be labour shortage; and, more cogently, by the demonstration that fairly comparable rates of investment in Germany and in Britain were nevertheless producing

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* See *British Labour Statistics Historical Abstract*, Table 35, and *Department of Employment Gazette*, December 1974, page 1,116.

† See my pamphlet *"Growthmanship"*, Institute of Economic Affairs, 1961.

very different rates of increase of output. In the early 1960's the National Economic Development Council was formed with the avowed (but unattained) object of increasing the rate of growth by some form of planning.

Next came the attempt to construct a "Social Accounting Matrix". This was started on the candid assumption that a 5% per annum growth rate was desirable, that Britain did not have it, but that it was worthwhile investigating to see what the input-output table would look like if the general growth rate were higher. This work made a valuable contribution to our understanding of the methods required for translating demand changes into their ultimate effects on the demands for different goods and services, particularly in handling the extremely difficult technical problems which arise from the existence of multi-product firms, and the highly heterogeneous nature of some consumer demands (as I said at the time in reviewing one of the preliminary reports in *Journal of the Royal Statistical Society).* But people came to think that these complex input-output relations would themselves constitute a recipe for 5% per annum growth. Not surprisingly, they were disappointed.

Undeterred, the Department of Economic Affairs under Lord George Brown set out in 1965 to prepare a "National Plan" based on a 5% per annum growth rate. Unfortunate industrialists were asked to prepare plans, without being informed of Government policy on most of the vital parameters concerning them. The object of this exercise was equally candidly stated—the Government wished to keep public expenditure rising, in real terms, at the rate of more than 4% per annum, and sought to prove that a rise in total product at the rate of 5% per annum was possible in order to justify such growth of public expenditure in the eyes of international critics. The whole plan was peremptorily abandoned in 1966.

But undeterred a second time, there came in the 1970s the extraordinary policy of "the dash for growth". It was assumed, by many authorities who ought to have known better, that by monetary inflation, and other violently expansionist policies, the economy could make the "dash" onto a new growth path, which once having been attained, all else would come right. This policy ended in sad disillusion.

We may now attempt to estimate the prospects for the next few years for U.K. exports and the balance of payments, taking into account both supply and demand conditions (the latter indicated by the expected volume of world trade, and U.K. prices and exchange rate). With some constraints (of other internal demands) on the supply side—which are unavoidable if we do not wish to have another balance of payments crisis, and if the exchange rate is kept low, demand prospects, within the range of all reasonable assumptions concerning the principal variables involved, are encouraging, so long as U.K. prices do not rise inordinately faster than those of competing industrial countries. Making the cautious assumption that North Sea oil does no more than replace fuel imports, and does not earn export revenue, by 1980 the balance of payments should be in substantial surplus and repaying debt, without any need for import restrictions.

The principal reason for choosing 1980 is to allow the necessary number of years for the time lags in the price elasticity of demand for exports and for manufactured imports to take effect. It is assumed that production at that date

(not only in Britain, but also in competing industrial countries) will be just at normal capacity, so that there will be no unusual temporary pressures, either upwards or downwards, on imports and exports, or on costs (see page 7).

The workings of the 1970 input-output table, and the calculation of "expected" imports, manufacturing output etc were shown above on pages 11-12 and Diagram II. The deviations of manufacture below 'expected', and of imports above 'expected', were of approximately similar order of magnitude and timing, both becoming marked after 1969. This agreement undoubtedly lends support to the concept that the basic problem of the British economy is on the supply, not on the demand side.

Certain modifications are required when we use the 1970 input-output table to make estimates for future years.

The input-output tables show certain demands generated for the produce of agriculture, also of mining, where substantial replacement of imports is expected. It is more convenient to omit these figures from the calculations of production requirements generated by the separate forms of expenditure, and to make independent estimates of the resources which will be devoted to agriculture and to mining in 1980.

The situation in which rising British agricultural production has provided for the slow increase in demand for food, leaving the real volume of food, drink and tobacco imports practically stable, is expected to continue. The development of North Sea oil, and some increase in coal supplies, is expected to reduce imports of fuel to zero by 1980, but not to provide for exports. The quantity of imports of other raw materials required will depend upon the quantity of manufacturing output, subject to the condition already noted, that economies of various kinds may be expected to continue reducing raw material demand per unit of manufactured output at the high rate of 2.2% per year.

The factor cost of the net output of agriculture, forestry and fishing in 1970 was £1.34 billion, which will have to rise to £1.62 billion in 1980 on the assumptions made below. Mining and quarrying output (excluding oil) at factor cost was £0.75 billion, and the approximate assumption is made that this should rise to £0.9 billion.

It is of course quite wrong to assume, as frequently seems to be done, that North Sea oil will supply itself, without incurring other current or capital costs. In fact, the indications are that it will incur costs substantially in excess of the cost of providing the same quantity of oil at pre-1973 prices; and these will be costs which represent a definite diversion of resources of labour, materials and capital services away from other activities. An estimate is made that the factor cost, in 1970 terms, will be £1.25 billion, to be added to the £0.9 billion for other forms of mining and quarrying.

Resources required in agriculture, forestry, fishing and mining production in 1980 are thus expected to be £3.8 billion at 1970 factor cost.

We now consider prospective elements in final demand.

In calculating the demands upon productive resources arising from various estimates of different forms of final expenditure we must not lose sight of the fact that final expenditures are expressed at market prices (i.e. inclusive of indirect taxes, less subsidies), while manufacturing, service etc productions

TABLE C
Final Expenditure 1970-75 — **£ billion at 1970 prices**

	1970	*1971*	*1972*	*1973*	*1974*	*1975*	*1976*
Consumers' Expenditure	31.64	32.50	34.40	35.93	35.59	35.23	35.29
Public authorities' current expenditure on goods and services	9.09	9.34	9.72	10.13	10.33	10.80	11.10
Gross domestic fixed capital formation	9.45	9.68	9.87	10.28	10.12	9.99	9.86
Increase of stocks and work in progress	0.44	0.01	0.09	1.13	0.60	−0.68	−0.01
Exports	11.27	12.08	12.35	13.80	15.15	14.55	15.55
Imports	−10.89	−11.41	−12.73	−14.41	−14.85	−13.90	−14.59
Gross domestic Product	51.02	52.30	53.66	56.86	56.94	56.00	56.91
Gross domestic product at factor cost	43.49	44.49	45.24	47.89	48.06	47.19	47.85

are expressed at factor cost, excluding the effects of indirect taxes and subsidies.

Table C shows the principal components of final expenditure in recent years.

It will of course be borne in mind that the terms of trade have changed considerably since 1970, and that each unit of imports costs more in terms of exports.

The composition of public authorities' current expenditure on goods and services (capital expenditure is dealt with separately) in 1970 and 1975 is shown in Table D.

TABLE D
Current public expenditure on goods and services

	£ billion at 1970 prices	
	1970	*1975*
Military Defence	2.42	2.40
National Health Service	1.85	2.24
Education	1.79	2.33
Other	3.03	3.83
	9.09	**10.80**

Restraint will be required to prevent the 1975 figure rising above £12 billion in 1980, especially if additional defence expenditure is required.

Fixed capital formation is shown in Table E.

TABLE E
Gross Domestic Fixed Capital Formation

		£ billion at 1970 prices					
		1970	*1971*	*1972*	*1973*	*1974*	*1975*
Dwellings	Private	0.84	1.01	1.16	1.04	0.87	0.95
	Public	0.80	0.75	0.71	0.71	0.82	0.86
Other	Private	4.50	4.59	4.75	5.18	5.06	4.82
	Public*	3.31	3.34	3.24	3.35	3.33	3.34
		9.45	**9.68**	**9.87**	**10.28**	**10.09**	**9.97**

* The public sector includes substantial investments in roads, electricity, telecommunications etc.

Construction of dwellings, both public and private, continues at a high rate. The figures now available for the first three-quarters of 1976, for both private and public residential construction, at 1970 prices, are almost exactly at the same rate as in the year 1975.

Even in present demographic circumstances, much of this would be unnecessary if more rational systems of renting prevailed. The continued decline in the number of children born will quickly lead to a substantial reduction in the demand for housing. Finally, it is clear that reduced expenditure on housing will unavoidably be one of the principal consequences of a policy of monetary restraint.

There are indications that there has been substantial over-investment in the public sector, primarily in electricity supply, but probably also in roads. Taking these considerations into account, but allowing for some recovery in private non-residential investment, it is possible that the total of domestic fixed capital formation could be kept down to £10 billion at 1970 prices in 1980.

Exports having risen to a maximum of £15.5 billion at 1970 prices in 1976, three separate estimates are made on the basis of exports at £16 billion i.e. hardly above 1976 level, £18 billion, £20 billion, in 1970 prices, in 1980. Such export demands, and the allowances stated above for Government expenditure and for fixed capital formation, will generate demands on productive resources and on imports, and determine the amount consequently left available for private consumption. Further calculations will have to be made about the price policy which, in view of estimated price elasticity of demand, will be necessary to enable the specified quantities of exports to be sold. This relationship between British and external prices will also have an effect on the volume of manufactured imports.

The estimates of total import demand generated in 1970 include £4.35 billion for imports of food, drink and tobacco, fuel and raw materials, or

40% of all import demand. Import demands in 1980 calculated from the input-output table will therefore be reduced by 40% and replaced by direct estimates of fuel imports (falling to zero), food, drink and tobacco imports (estimated as stationary), and raw material imports (calculated from manufacturing output).

Productive capacity in 1980, at 1970 prices and at factor cost, has been estimated above at £57.6 billion, of which £3.8 billion will be required for agriculture etc and for mining, leaving £53.8 billion.

We have assumed that public expenditure on goods and services, and gross (public and private) domestic fixed capital formation, will be stabilised at £12 billion and £10 billion respectively, at market prices of 1970. Excluding small indirect tax elements, these will generate factor cost demands at 1970 prices as indicated in Table A for manufactures, services (broadly defined) and imports, with final results shown in Table F. (The comparatively small demands generated for agricultural and mining products have been dealt with elsewhere, and the figures for capital formation have been adjusted to allow for the decreased proportion of house-building and the increased proportion of equipment purchases.)

Next are calculated the demands for production resources, and for imports, expected to be generated by the three assumed levels of export volume (again omitting agricultural and mineral demand). Finally, knowing that internal productive capacity (other than for agriculture and mining) is expected to be limited to £53.8 billion (factor cost, at 1970 prices) we can calculate by difference how much will be available for consumption (assuming that we do not wish an increasing proportion of it to be met from imports); and also show how productive resources will have to be apportioned between manufacture and services.

In the light of the above some further modification of the input-output analysis will be necessary. In the gross domestic capital formation sector a substantial reduction is expected in housing, which makes large demands upon "construction", defined as a service industry, with increased emphasis on the purchase of industrial equipment, a substantial proportion of which is imported (Industrial equipment is becoming increasingly specialised, and in some cases one or two firms may have to supply the entire world's requirements).

An export target of £20 billion at 1970 prices is indeed an austere one. It implies consumption at 1970 market prices of only £38.4 billion, as against £35.9 billion in 1973, £35.2 billion in 1975 and £35.3 billion in 1976.

The lower of three export projections, on the other hand, allows consumption in 1980 to rise to £43.4 billion, or 21% above the 1974 level, a rate of increase of more than 3% per year.

On all three assumptions, the differences in import requirements are slight, the total approximating £14.7 billion in each case. Because the imports shown in the 1970 input-output table included substantial quantities of food, raw materials and fuel, accounted for in separate calculations, we reduce this by 40% to £8.85 billion, then add direct estimates of imports of food, drink and tobacco at £2.05 billion, and of raw materials at £1.4 billion. The latter is the same as it was in 1970, the estimated increase in manufacturing output being almost exactly offset by economy in use of raw materials per unit of product.

We should however do more than include £3.45 billion for food, drink,

tobacco and raw material imports. Since 1972 the prices of food and raw material imports have risen relative to the prices of the manufactured goods and services to which the rest of the table refers, and we should allow for the probability that this relationship will continue (though the representatives of the world's agricultural and mineral exporting countries are not so optimistic about world terms of trade continuing in their favour). The 1970 relative prices of these goods are therefore raised by some 25%, bringing total import requirements for balance of payments estimates i.e. requiring to be offset by exports, up from the £12.3 billion addition given above to a revised figure of £13 billion. This estimate is before making any other allowance for possible displacement of imported by home produced manufactured goods, or *vice versa.*

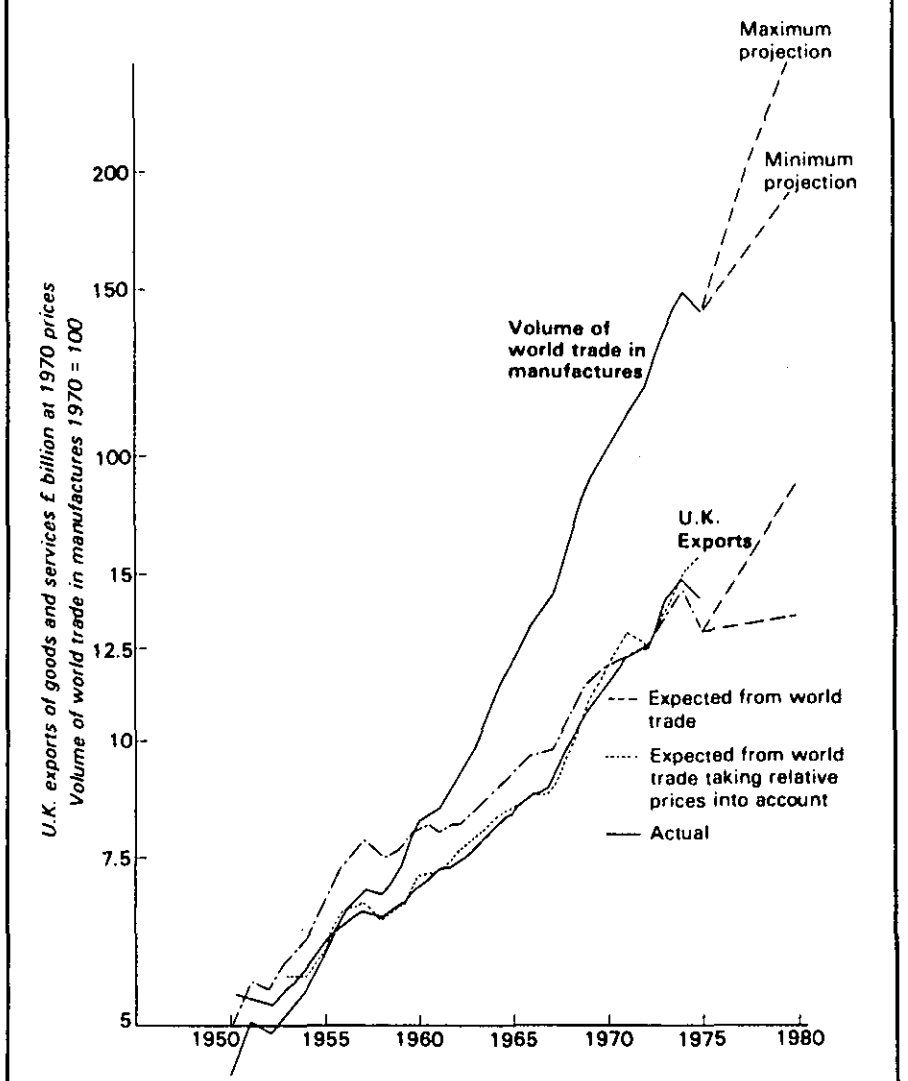
TABLE F
Projected use of UK resources in 1980 £ billion at 1970 prices

	EXPORTS			*Public Expenditure on goods and services*	*Gross domestic fixed capital formation*
	Assumption A	*Assumption B*	*Assumption C*		
Final demands (market prices)	16	18	20	12	10
Intermediate demands (factor cost)					
Imports	3.3	3.8	4.2	1.2	2.5
Productive capacity					
Manufacture	6.5	7.3	8.1	1.7	3.5
Services	4.8	5.4	6.0	8.9	3.5
Sum of demands on productive capacity (including two last columns)	28.9	30.3	31.7		
Remainder of productive capacity available for consumption	24.9	23.5	22.1		
Consumption demands					
Manufacture	6.9	6.5	6.1		
Services	18.0	17.0	16.0		
Imports	7.6	7.2	6.8		
Total demands					
Manufacture	18.6	19.0	19.4		
Services	35.2	34.8	34.4		
Imports	14.6	14.7	14.7		
Consumption at market prices	43.4	40.9	38.4		

We must now consider the effects of relative prices, exchange rates, and other factors on the quantity of British exports (and of manufactured imports). The relationships are shown in Diagram IV with explanations in the notes attached to it.

British exporters have to serve a world market, and clearly the volume of world trade in manufactured goods is one of the principal determining factors of the volume of British exports. After rising with extraordinary rapidity, world trade in manufactures suffered a setback in 1975 (for the first time since 1958).

Diagram IV
UK EXPORTS OF GOODS AND SERVICES



Notes to Diagram IV

World Trade in Manufactures—United Nations Statistical Year Books and Monthly Bulletins of Statistics. Earlier years linked to 1970 base. Projections to 1980:
Minimum: 6% per year rate from 1970-72 base;
Maximum: 1965-1974 growth projected.

Expected volume of U.K. exports at 1970 relative prices—Volume in £ billion at 1970 prices from world manufactured goods trade index (base 1970 = 100) multiplied by 0.224 to 1957, subsequently by 0.220 for 1958, falling subsequently by a factor of 1.053 per annum.

Expected volume of exports taking relative prices into account—Assumed price elasticity of demand of 3, with effect nil in current year and spread uniformly over the three subsequent years i.e. relative prices (1970 base) for three past years multiplied together to give assumed price effect for current year. World prices (expressed in U.S. $) from United Nations: U.K. prices from deflator for exports of goods and services, adjusted for differences of exchange rate from its 1970 value ($2.40).

There are wide differences of opinion as to what may happen to world trade between now and 1980. World trade, it should be noted, has been rising at a much greater rate than world industrial production, indicating that the

TABLE G

	Volume of world trade in manufactures 1970 base	*Price index in U.S.$ of world manufactured exports*	*U.K. export volume £ billion at 1970 prices*	*U.K. sterling export price on 1970 base*	*£/$ exchange rate*	*U.K. exports expected at 1970 U.K./world price ratio from volume of world trade & trend factor £ billion at 1970 prices*	*Multiples of U.K./world price relatives for past 3 years (1970 = 100)*	*Calculated exports (col 6/col 7)*
1950	22.1	65.8	5.42	55.4	2.80			
1951	24.7	78.8	5.37	68.0	2.80			
1952	24.4	79.5	5.25	71.5	2.80			
1953	26.0	76.5	5.48	67.5	2.80	5.82	1.035	5.62
1954	27.3	75.0	5.78	66.5	2.80	6.12	1.086	5.64
1955	29.8	75.6	6.14	68.1	2.80	6.68	1.113	5.98
1956	32.7	79.0	6.41	71.8	2.80	7.32	1.116	6.57
1957	34.8	81.7	6.57	73.5	2.80	7.79	1.151	6.78
1958	34.2	81.6	6.47	72.9	2.80	7.52	1.168	6.44
1959	36.6	81.8	6.65	73.0	2.80	7.65	1.158	6.61
1960	41.0	84.0	7.02	73.4	2.80	7.25	1.136	6.38
1961	42.3	85.3	7.24	74.2	2.80	7.75	1.105	7.01
1962	45.3	85.1	7.36	75.0	2.80	8.12	1.075	7.54
1963	49.0	85.8	7.66	76.1	2.80	8.35	1.062	7.86
1964	55.0	86.9	7.99	77.0	2.80	8.86	1.075	8.26
1965	60.1	89.0	8.37	78.8	2.80	9.23	1.096	8.43
1966	65.9	91.0	8.70	81.2	2.80	9.62	1.103	8.72
1967	70.0	91.7	8.80	82.5	2.75	9.70	1.111	8.72
1968	81.0	91.7	9.82	89.7	2.39	10.04	1.105	9.69
1969	91.8	96.0	10.74	92.1	2.39	11.48	1.043	11.00
1970	100.0	100.0	11.27	100.0	2.40	11.86	0.998	11.88
1971	108.0	104.5	12.08	104.8	2.45	12.18	0.953	12.79
1972	117.0	113.7	12.35	107.5	2.50	12.52	1.000	12.52
1973	133.0	132.5	13.74	122.9	2.45	13.50	1.007	13.60
1974	148.0	161.0	14.68	152.5	2.34	14.23	0.951	14.94
1975	141.0	182.0	14.03	186.1	2.21	12.90	0.853	15.11
1976							0.800	

degree of industrial specialisation throughout the world is substantially increasing. The first estimate is that world trade will shortly get back onto its old trend line, and then continue its 1965-74 rate of growth.

An alternative estimate is for a much lower rate of growth. This estimate is not based on any supposed shortages of materials, to which industry can fairly easily adapt itself; but there are some opinions that the growth of world trade between 1960 and 1974 was based on exceptional investment demand, coupled with excessive international liquidity, and that these factors may not recur.

The ratio of British manufactured exports to world total was approximately stable in the early 1950s, but since 1958 has shown a fall (after the adjustment for price factors discussed below) at a rate of over 5% per annum. This ratio in recent years has shown a marked decline in its rate of fall. This is to be explained in terms of exchange depreciations, and consequent comparative price advantage.

The relevant price information is given in Table G. The method of calculations is explained in the notes to Diagram IV.

It will be seen that the factors analysed (volume of world trade, and comparative price and exchange rates) give a reasonably good explanation of the actual course of British exports since the 1950s.

Calculations of what price rise will be permissible up to 1980 of course vary with the different assumptions about the future volume of world trade. Two different figures of 3 and 2 are assumed for export price elasticity.

We have no means of estimating the probable rates of price rise in other countries (to be more precise, their price rises multiplied by the alterations of their exchange rates, so that stable prices in, say, Germany or Switzerland, accompanied by a 5% per annum appreciation of their currencies against sterling, would be equivalent to a 5% per annum price rise, for this purpose). Possible British price policies are therefore expressed in terms of the rate of increase in British prices relative to those in other countries.

In past years the British export price deflator showed some tendency to fall relative to the general national product deflator. In recent years this tendency has ceased. In Table H movements of export prices are treated as equivalent to general price movements.

The estimates for imports are based on the figure of £13 billion calculated on 1970 prices and British/world price relationships, with additions or subtractions for the expected effect of the price changes given in the line above. This original figure of £13 billion, it will be remembered, was not an exact revaluation of all expected imports at 1970 prices, but account was also taken of expected movement in the terms of trade in world markets in favour of food and raw materials as against manufactures and services. The £13 billion represents therefore, in effect, the expected cost of imports in terms of the exports required to purchase them.

These deviations, upwards or downwards, from the figure of £13 billion will represent positive or negative changes, up to a maximum of £2.9 billion in one column, which will be required in the output of manufactures, if replacement of imported manufactures is to take place to the extent indicated. Required manufacturing output, as shown in Table F, was £18.6-19.4 billion

TABLE H
Price effects on volumes of British exports and of manufactured imports.

	Minimum		*Maximum*			
Expected volume of world trade in manufactures in 1980 (1970 = 100)		188.7			261.2	
Expected British exports if 1970 relative prices continue (£ billion at 1970 prices)		13.4			18.5	
Required volume of exports 1980 £ billion at 1970 prices	16	18	20	16	18	20
Average relative price (1970 base) in 1977-79 required to produce exports indicated:						
Price elasticity 3	0.943	0.906	0.875	1.048	1.009	0.974
Price elasticity 2	0.915	0.863	0.818	1.075	1.014	0.962
Permissible percentage increase in British prices 1975 to 1977-79 in relation to world prices (exchange rate assumed stabilised at $1.6/£)						
Price elasticity 3	40	35	30	55	50	45
Price elasticity 2	36	29	22	60	51	43
Expected total imports after allowing for effects of above relative prices* on demand for manufactured imports £ billion at 1970 prices	11.6	10.8	10.1	14.2	13.2	12.4
Balance of payments on current account £ billion at 1970 prices	4.4	7.2	9.9	1.8	4.8	7.6

* Whichever assumptions are made about export price elasticity, the price chosen to bring exports to the desired level will have the same effect on the £8.75 billion (at 1970 prices) of imports of manufactures and services e.g. in the first column the raising of exports from the "expected" (at 1970 relative prices) level of £13.4 to £16 billion, i.e. by a factor of 1.195 will lower manufactured goods and service imports by the same factor from £8.75 billion to £7.31 billion to which must be added £4.25 billion of food and raw material imports, to give £11.6 billion in all.

at 1970 prices. In addition Table H shows possible replacements of imports, varying with our assumptions about the growth of world trade, of £0.6-2.9 billion at low U.K. prices and of £—1.2 to + 1.4 billion at high U.K. prices of which some 25% may consist of services, leaving a mean of about zero in the second case, and £1.3 billion in the first. Adding these to the Table F results we obtain estimates of required manufacturing output ranging from £18.6-20.7 billion as against £14.12 billion in 1970, or a maximum of £15.6 billion (at 1970 prices) attained in 1973. In the first quarter of 1977 however the annual rate of manufacturing production was only £14.86 billion at 1970 prices. In order to reach the 1980 targets average annual growth rates will be required between now and then of 7.5% and 11% respectively, faster than the 5.4%

rate of increase achieved (under great inflationary pressure) between 1971 and 1973. It is clear that drastic structural changes will be required.

Moreover these results, it will be remembered, are based on 1970 input-output relationships. It may be that since that date there have been structural changes (i.e. other than those depending on relative prices, or comparative pressures on productive capacity) in demand in the direction of increased requirements of imported manufactures or services. If this has been the case, the results will be less favourable than indicated.

The "permissible" price rises between 1975 and 1977-79 are in addition to whatever may be the expected average price rise in other industrial exporting countries (adjusted for any changes in exchange rates). On the minimum assumption, of a substantial slowing down in the rate of increase in world trade in manufactures, it is probable that price rises in other countries will also be limited, and in 1977-79 may be only about 15% above 1975. On the alternative assumption of a renewed increase in the volume of world trade however a larger price increase in other countries is to be expected.

These calculations have been made however on the assumption of very drastic checks on any further rise in Government expenditure, whether current or capital, and a large reduction in housing demand, but a rise in business investment and a transfer of resources into manufacturing production at an unprecedented rate. If this is not attained, we shall be back in the old position of inadequately increasing exports and more imports of manufactures being sucked into the economy. To apply import restrictions in these circumstances—as will doubtless be urgently demanded—would be fatal, leading to no increase in supply, but to the creation of partial monopolies, and increases in prices. When will Lord Kaldor and his friends see that the root of our troubles now lies in inadequate supply, not inadequate demand?

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