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No. 35 November 1984

Rate of profit, business cycles and capital accumulation in U.K. industry, 1959-1981

Angelo REATI *

Internal Paper

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This paper is also available in French.

II/95/84 Orig.FR

Contents

SUMMARY

The main purposes of this investigation are twofold: a study of long-term trends in the rate of profit and its components in British industry and secondly to ascertain whether or not there is a connection between profitability cycles and production cycles.

The study confirms the long-term fall in profit rates and shows the role played by the accumulation of capital. It is particularly noticeable that the latter has exerted on profitability a downward pressure greater than that which has resulted from wage increases. Investment outlay has thus not been "efficient" in the sense that the increase in capital per employee has been more rapid than its effects in terms of productivity growth.

Inflation exerted a perverse effect on industrial profitability by an unfavourable movement of relative prices (selling prices with respect to fixed capital prices and cost of living), thus giving rise to transfers of potential profits from most of the industrial sectors towards the equipment goods sector (especially construction), trade and some other services.

A comparison of profitability cycles and production cycles shows a correlation between the two, the peaks and troughs of profitability generally anticipating those of production.

Throughout the period, capital accumulation was intensive: the expansion of the volume of fixed capital led to an increase in the capital intensity of production, at the expense of employment. This trend increase of capital intensity of production seems to result from the very nature of the process of capital accumulation, where the aims are to secure profits as well as increase control of the production process. As investment slowed down in the 1970s, this feature of British investment became more pronounced. The main purpose of the modest investment carried out was to introduce highly capital-intensive techniques, which helped to aggravate the unemployment problem.

II/95/84-EN
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I. INTRODUCTION

1. This paper - which is a part in a wider study on profitability and production cycles in industry in the four largest Member States (1) - takes as its starting point the hypothesis that the rate of profit is one of the chief factors explaining the fluctuation in the level of activity of enterprises. Consequently, the study of long-run profitability trends, and the comparison of profitability cycles with production cycles, is very useful in helping us to understand the economic crisis which has bedevilled the western world for a decade. Of course, the importance of profitability does not mean that other factors of comparable weight have not also influenced the economy. In order to understand the present "crisis" satisfactorily, we must therefore refer to theoretical models which are far more complex than one which merely considers profitability, even if profitability already subsumes other fundamental explanatory factors (income distribution, capital accumulation, productivity).

2. In economic analysis, the relationship between the rate of profit and the level of activity is treated in a variety of ways. No theory assumes a direct link between the two variables, but usually the causal link between investment and production is acknowledged. Investment exerts a fundamental influence on production, as regards both aggregate demand and supply, through the creation of production capacity. The point at issue is how to explain investment, and notably the influence of profit on capital accumulation, and hence on the level of activity.

In the neoclassical model, the link between profits and investment is merely implicit and is situated within the framework of the technical possibilities of a production function where the scope for more or less continuous factor substitution is possible. In this context, investment would be determined by the relative price of capital (as compared with labour), in that, when this price falls, enterprises tend to invest more, and thus become relatively

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(1) The case of Italy is analysed in document II/63/82 of February 1982 and the case of Germany in document II/275/82 of May 1982.

more capital intensive (1).

In the cruder versions of Keynesian theory, the role of profit is more explicit, although it is placed at the end of a dynamic process which is chiefly determined by other factors. In this "demand/investment" model, investment is primarily determined by demand prospects and by the rate of utilization of production capacity (the accelerator principle). The resulting level of activity in turn determines the size of the profits. Profit is thus the last link in the chain, and the savings of the enterprise come from its investments. In particular, in the accelerator mechanism, the only profitability hypothesis is that at the expected level of production the rate of profit is sufficient to permit the enterprise to continue its activity.

In a third model - which will be called "profits/investment" - the sequence is reversed and profit plays a central role. Because the objective of an enterprise is to make a profit, profitability becomes the motive force for capital accumulation; it is then the enterprise's saving (resulting from profit) which determines investment, and not the reverse. This model thus implies a correlation between rate-of-profit cycles and production cycles, in that the former should anticipate the latter. There will normally be a time lag before changes in profits work through to production, because it takes time to implement investment projects, and because a certain sluggishness in the corporate decision-making process may entail delays in adjusting to new market conditions.

This paper starts by defining the concepts and methods used, and then goes on to analyse the trends of the rate of profit and of its components from 1959 to 1981. Next, it turns to the empirical verification of the relationship between profitability cycles and production cycles. The final section studies the trends of capital accumulation underlying production cycles.

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(1) More generally, it should be noted that, in neoclassical theory, the position of profit is a curious one. The starting point for the analysis is the assumption that enterprises are motivated by the wish to maximize their profits or net worth, as shown by the discounted value of their future profits. Immediately afterwards, profit in practice disappears from the analysis, since it is eliminated by competition. On this subject, see the comments of M. Obrinsky (1981, p. 495-496).

II. CONCEPTS AND METHODS

The profitability indicator chosen is the rate of profit on capital advanced, i.e. on all capital which contributes to production (fixed capital and circulating capital). Before defining this concept of capital in greater detail, we turn first to the measurement of the numerator itself.

1. The national accounts enable us to capture profits in a variety of ways, which lie quantitatively between two boundaries ; gross operating surplus and the net disposable income. The process of moving from the first of these to the second is illustrated in Table 1, which gives the 1970 and 1980 figures for the group of non-financial enterprises, similar data for industry not being available.

The operating surplus (gross and net) is an indicator of the return on economic activity, whereas net disposable income - the equivalent of net retained profits - is a measure of the scope for self-financing the widening of the production capacities. The gross operating surplus is thus a production concept ; disposable income becomes relevant when the structure of financing has to be determined.

It is arguable that, in order to study the long-term profitability trends and to establish their influence on the economic cycle, it is necessary to attach greater importance to the "production" aspect, and therefore to take the operating surplus into consideration. The return on economic activity for example does exert a determining influence on the establishment of corporate plans and is an essential benchmark for those who have to finance their implementation.

In this paper, profit is considered from two viewpoints: gross (GOS) and net. The gross profit is at factor cost rather than at market prices, to take account of the fact that the return of enterprises is influenced by subsidies. Indirect taxes are not taken into account because, although they form part of value added, they are paid directly to the State.

Table 1: Income account of non-financial enterprises (NFE)

	1970		1980	
	£ million	(%) GOS	£ million	(%) GOS
Value added at factor cost	29 143		107 605	
- Wages (including social contributions)(1)	21 745		77 598	
- Gross operating surplus (GOS)	7 398	100,0	30 007	100,0
- Depreciation	2 909	39,3	17 687	58,9
- Net operating surplus (NOS)	4 489	60,7	12 320	41,1
- Actual interest, net	1 690	22,8	9 076	30,2
- Dividends and other income distributed, net	1 051	14,2	1 045	3,5
- Direct taxes	1 368	18,5	5 623	18,7
- Withdrawals from the entrepreneurial income of NFE	9	0,1	40	0,1
- Other transfers, net (2)	- 44	-0,6	- 64	-0,2
Net disposable income	415	5,7	- 3 400	-11,2

(1) Because the ESA makes no distinction between wages paid by NFE and those paid by sole proprietorships (household sector), these figures have been estimated on the basis of the 1981 and 1982 Blue Books, in proportion to the GOS.

(2) The difference between imputed social contributions (resources) and social benefits (uses) is zero.

Source: EUROSTAT, National Accounts ESA. Detailed tables by sector 1970-1980, Luxembourg 1982.

Net profit was obtained by using "economic" depreciation (at replacement cost) (1), calculated when estimating the stock of fixed capital (2).

2. Turning to the denominator , the stock of fixed capital used is the net capital at the half-year, at replacement cost.

It might be argued that it would be more appropriate to use gross fixed capital in order to calculate the rate of profit. But this is not the case, because gross fixed capital is not capital advanced: the fraction of fixed capital already written off, if it still exists in its physical form, has already been incorporated into costs (depreciation) and recovered by the sale of products.

3. The stock of circulating capital represents those funds which are permanently tied up in the enterprise in order to finance the compensation of the labour force employed during a production period,and to purchase the goods and services which are entirely consumed during the production cycle (intermediate consumption). It differs from fixed capital because it is entirely recovered at the end of the cycle of production and realization, to be invested in it once more. It is therefore important not to confuse the stock of circulating capital - the volume of which depends on the length of the said cycle - with, for example, the cash requirements which stem solely from the fact that wages are paid weekly or monthly.

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(1) The national accounts perspective - which is different from balance sheet data, at historic costs - gives a better picture of reality: the replacement cost technique allows for the fact that the replacement of equipment involves increased costs because of inflation.

(2) Unlike the papers on Italy and Germany, there seemed no point here in adjusting profits on the basis of an estimate of the earned income of self employed persons,because in British industry they account for a very small proportion of total employment (under 2% for total manufacturing) and this remains quite stable over time.

Circulating capital may be considered either from the technical viewpoint (the capital necessary, which must be advanced in one way or another), or as capital financed by the enterprise (1). From the first point of view, the only one considered here, it successively takes three forms:

(a) productive circulating capital, which consists of the stock of raw materials and other material inputs, as well as the labour force;

(b) commodity circulating capital, which is made up of stocks of work in progress and finished products, including transported goods. Their value includes wages, raw materials and other types of intermediate consumption;

(c) monetary circulating capital, obtained from the sale of the stock of finished goods.

Each form is converted into the next through the activities of production, acquisition and realization, which give rise to flows (intermediate consumption, wages, receipts from the sale of finished products). There is therefore a one-to-one correspondence between flows and stocks, which means that changes in stocks are accurately reflected in flows.

In the case which concerns us here, the problem is to assess the fraction of annual flows of wages and intermediate consumption which is tied up in the enterprise in relation to the length of acquisiton, production and marketing periods. This means that one must know the rate of turnover of circulating capital (r), i.e. the number of times a year in which the advances in question are recovered. Because this information is not recorded in the statistics, it was estimated as follows:

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(1) The sometimes considerable difference between "financial" and "technical" circulating capital is due to the credit which the enterprise receives (through banks, suppliers, and advances by customers) or which it grants (to customers and by advances to suppliers).

$$r = \frac{IC+W}{ST} \qquad (1) \qquad (I)$$

where IC = intermediate consumption

W = wages and salaries (hereinafter "wages")

ST = average annual levels of stocks of raw materials, finished products and work in progress(hereinafter "stock levels") (2).

This definition of r therefore implies that the number of times in which circulating capital for wages and circulating capital for raw materials is recovered corresponds, on average, to the ratio of stock renewal to total costs. This hypothesis, the only one possible in the absence of data, is thus an approximation to the underlying real magnitudes.

4. The formula for the rate of profit on capital advanced used in this paper is the following (see Levy-Garboua and Weymuller 1981, page 113), in which all magnitudes are at current prices:

$$p = \frac{S}{K + \frac{IC}{r} + \frac{W}{r}} = \frac{S}{W} r \frac{1}{1 + sa} \qquad (II)$$

where S = profits (operating surplus)

K = stock of net fixed capital at replacement costs, at the half-year

r = rate of turnover of circulating capital

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(1) In reality, two rates of turnover would be needed - one for circulating capital for raw materials (r_m), and another for circulating capital for wages (r_w) - because the periods during which they are tied up do not exactly coincide. However, the data available did not permit this refinement in calculating the rate of profit, and it is therefore assumed that:

$$r_w = r_m = r$$

(2) ST is equal to the arithmetic mean of stock levels at the beginning and end of each year, at current prices. This mean is virtually the same as the similar mean which is obtained from national accounts data, where stocks are valued at the constant prices of the year. In order to calculate the changes in stocks in the national accounts, the end-of-year stocks are deflated by the rise in prices for the period, and the reverse is applied to the beginning-of-year stocks. As a result, even in periods of high inflation the differences between the mean at current prices and the mean at constant prices are tiny.

sa = indicator of the structure of accumulation

$$= \frac{K + (IC/r)}{W/r} \qquad \text{(III)}$$

S/W = income distribution ratio

Formula II shows that, for a given quantity of value added, the rate of profit is a function of three elements:

- income distribution (S/W);

- the rate of turnover of circulating capital (r), which reflects the relative size of this part of the capital advanced. A steady rise in r reflects greater efficiency in stock management just as much as technical changes inside or outside the sector concerned (e.g. improved transport conditions) which, by reducing the relative amount of circulating capital, have a favourable effect on profitability;

- capital accumulation, as summarized in the indicator sa (structure of accumulation). The changes in this indicator - which reflects the introduction of technical progress into the economy - show the extent to which accumulation exerts downward pressure on the rate of profit. Such pressure is exerted when, all other conditions being equal, the indicator sa increases as a result of a dynamic process caused by competition. There would then be an "overaccumulation" of capital relative to the sector's profit opportunities. We shall return to this aspect below (1).

Formulae II and III could be further broken down to include the rate of capacity utilization. This element - which is very important in order to explain the short-term fluctuations in profitability (i.e. within cycles) - has been ignored here, since the purpose of the paper is to study the long-term changes and their causes. The long-term dynamics of the rate of profit and of the indicator of the structure of accumulation would not be affected by the rate of capacity utilization unless it showed a long-term upward or downward trend. This is not usually the case, since positive cyclical changes in the rate of capacity utilization are offset by negative

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(1) We shall also see that sa can also grow in relationship with the interaction between the increase in wages per person employed and the choice of productive techniques.

ones (1).

5. Formula II offers at least two advantages over the indicators most frequently used in macroeconomic studies (wage share in value added and return on stock of fixed capital). The first advantage stems from the fact that formula II gives more information than the wage share, since we have just seen that it can be broken down into an income distribution ratio and an indicator of the structure of accumulation. The second advantage is that it takes account of circulating capital, which not only is an important factor for the study of economic fluctuations, but makes intersectoral comparisons of rates of profit more meaningful. Since the proportion of fixed capital varies appreciably from one branch to another, if we do not consider the capital advanced as a whole, any comparison of profitability levels is not very meaningful.

Formula II corresponds to the rate of profit of fixed capital plus stock levels, since under the United Kingdom's accounting rules the value of stocks of finished products does not include expected profits (2). Nevertheless, the above analytical breakdown (which takes intermediate consumption and wages into consideration) has potential interest and is worth identifying in quantitative terms.

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(1) Of course, this is valid only for fluctuations in the rate of capacity utilization that are related to the economic cycle. To this must be added the "structural" surplus of productive capacity, resulting from the fact that, since 1973, certain plant has become obsolete as a result of the higher energy prices. Since the statistics for capital stock do not take sufficient account of this factor, part of the increase in capital per person employed is due to this statistical bias rather than to technical changes.

(2) Thus they are valued according to the FIFO method, "at the lower of cost or realizable value" (Maurice, 1968, page 402).

6. The indicator of the structure of accumulation might seem somewhat ambiguous, since at the same time it reflects the effects of technology and of income distribution (1). Nevertheless, it does have the advantage of establishing a relationship between these two factors, which are often interdependent and may exert conflicting pressures on profitability. All things considered, it therefore seems preferable to formula V, which takes account of technology only.

In order to show the contradictory effect of the elements which determine the indicator sa, let us express formula III in terms of the capital intensity of production. This can be done from two points of view, one which emphasizes the efficiency of technological change, and the other the interaction between technological change and income distribution.

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(1) To avoid this drawback, some authors break down the rate of profit as follows:

$$p = \frac{S}{KA} = \frac{S}{VA} \cdot \frac{VAV}{KAV} \cdot \frac{PVA}{PKA} \qquad \text{(IV)}$$

Where: KA = capital advanced, at current prices

VA = value added, at current prices

V = volume

PVA and PKA = price of value added and of capital advanced.

When the rate of profit is presented in this way, the indicator of the structure of accumulation is replaced by the following expression:

$$ca = \frac{VAV}{KAV} \cdot \frac{PVA}{PKA} = \frac{KAV}{L} \left(\frac{VAV}{L}\right)^{-1} \frac{PVA}{PKA} \qquad \text{(V)}$$

where: L = number of employees

We shall see that formula V is only a part of the indicator of the structure of accumulation used here.

Taking the first approach, we have: (1)

$$sa = \frac{QT}{PDT} \quad \frac{PKA}{PVA} \quad \left(\frac{W/r}{VA}\right)^{-1} \qquad \text{(VI)}$$

where QT = capital intensity of production = KCAV/L

PDT = labour productivity = VAV/L

The influence of technology can be seen in the term (QT/PDT), which records the net effect of technological change and of its impact on productivity. When the growth of the capital intensity of production is greater than the growth of the productivity associated with it (QT/PDT increases), the indicator sa is subject to upward pressure (and the rate of profit to downward pressure): accumulation is not efficient, since the improvement to productivity requires too much capital.

This initial impact is rectified by two factors: (a) the movement of the relative prices of capital advanced, which reflects the strength of the investment goods sector relative to the others; and (b) income distribution, adjusted by changes in the relative proportion of circulating capital for wages (W/r). A rise in r (fall in the proportion of circulating capital) pushes sa upward, because it reduces the influence of the wage share in value added (the last term of formula VI increases), and hence gives greater importance to fixed capital.

The evolution of the indicator of the structure of accumulation is thus the outcome of a set of factors which do not all necessarily act in the same direction. The fact that their action is synthesized in a single indicator is a strong point which makes it more useful than others for analyzing profitability. For example, if we note that sa is not increasing, and that at the same time the rate of profit is falling, we can immediately discard

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(1) For this purpose, it is sufficient to multiply and divide formula III by the number of employees (L) and by the value added at constant prices (VAV) respectively, and to take account of the change-over from aggregates at constant prices to aggregates at current prices:

VA = VAV • PVA

KCA = KCAV • PKA

where KCA = stock of fixed capital and circulating capital for raw materials advanced, at current prices = K + (IC/r).

the hypothesis that this fall is due to an "overaccumulation" of capital. By constrast, if we had taken into consideration only the "changes in technologies" aspect(formula V),we would have arrived at this conclusion only if the term QT/PDT had fallen or remained stationary. If it increases, all that we learn from formula V is that technology exerts downward pressure on profitability. There is therefore no way of immediately establishing, as in the case of formula VI, whether this first stimulus has become less important because of the upward movement of wages.

The other way of breaking down the indicator of the structure of accumulation is the following:

$$sa = \frac{QT}{RWL/r} \cdot \frac{PKA}{PC} \qquad \text{(VII)}$$

where: RWL = real wages per employee
PC = consumer prices index

As stated earlier, this presentation of sa shows in particular the possible interaction between technological change (which is statistically reflected in QT) and income distribution. For, while it can be taken that the search for productivity gains gives rise to a trend increase in the volume of capital per employee (indicator QT), income distribution probably influences this trend also. Thus, enterprises can react to real or expected rises in nominal wages by introducing more capital intensive or labour efficient technological advances which increase productivity. Thus in this schema, rising wages accelerate the tendency to increase the capital intensity of production. Furthermore, the upward movement of the real wage creates outlets for the additional goods resulting from increased productivity. Wage increases are thus both a motive for achieving productivity gains and a condition permetting them to take place.

Lastly, before concluding this section, it may be useful to provide further information on the mechanisms by which capital accumulation can exert a downward pressure on the rate of profit.

7. Here it should be noted that when an oligopolist increases QT, a competitive struggle is likely, culminating in an increase in capital intensity throughout the branch and a reduction in the rate of profit. The increase in the profit margin (difference between unit prices and costs) resulting from the new techniques,enables the innovator to bring down prices; in order to preserve

market shares, his competitors react by investing in the same techniques and adjusting their prices. The result is a chain reaction affecting both the organization of production (choice of techniques) and pricing policy, the possible outcome of which is indicated above.

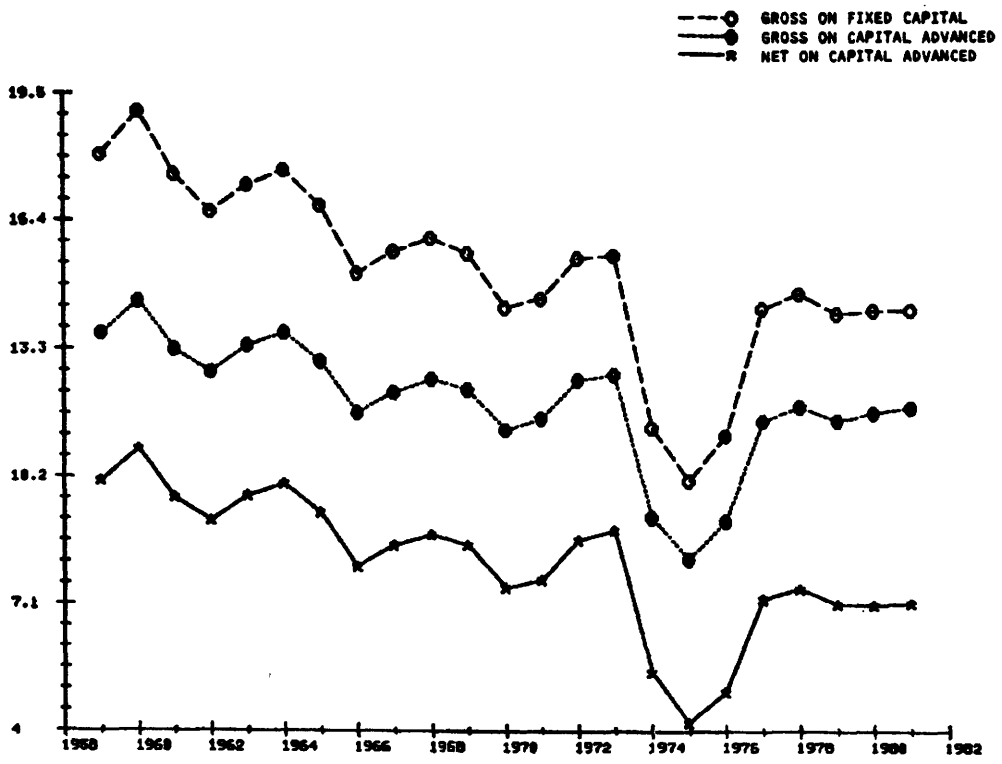
Let us now examine the empirical results. Annex I gives details of the source of data, calculation methods and the grouping of branches by large sectors: sector I, investment goods; sector II, intermediate goods; sector III, consumer goods.

Part I

III. LONG-RUN PROFITABILITY TRENDS

1. Gross and net rates of profit on capital advanced and the gross rate of profit on the stock of fixed capital followed very similar trends (for an example see Figure 1). (1)

Figure 1: The rates of profit
Total industry (including construction)



(1) The only notable divergence was in the energy products sector, where net profitability showed much wider fluctuations than the other two rates of profit.

Consequently, unless otherwise stated, the terms "rate of profit" and "profitability" henceforth refer to the net rate of profit on capital advanced.

2. All sectors,except construction and energy products,showed a long-run downward trend (Table 2 and Figure 2). This feature of the British economy is well known,and an analysis of the main studies on the subject is given in the Annex.

The downward trend was steepest in the investment goods sector (excluding construction), where the rate of profit dropped by an average 8.1% per year (Table 2). Over the whole period the decline was the least marked in the intermediate goods sector(-2.3% per year; see Table 2). Two sub-periods may be distinguished. From 1959 to 1975 profitability followed the same declining trend as in the other sectors, whereas between 1976 and 1981 the trend was reversed, so that in 1981 the rate of profit was higher than its 1959 level. This reversal was due to the impact of the energy products sector. This sector, like construction, shows a trend profile which sharply differentiates it from the other sectors. Before the North Sea deposits were exploited, profitability in the energy products branch fluctuated around a low and level trend (on average the net return on capital advanced from 1959 to 1973 was 2.3%). After the sharp drop in 1974, when net profitability became negative (-0.1%), there was a very rapid rise, and by 1981 the rate of profit was the highest for industry (excluding construction).

From 1959 to 1972 the rate of profit for construction (characterized by extremely high profitability levels compared with the rest of industry (1)) followed a very strong upward trend. After the sudden fall over the period 1974-77, which brought the rate of profit down to the level of the late

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(1) The difference is due to the fact that this branch requires relatively little fixed and circulating capital.

Table 2

Exponential trend of profitability 1959-81 (1)

	a	b	r^2	trend level (2)	
				1959	1981
Investment goods					
a) excluding construction	2.69	-0.081 (-5.15)	0.558	13.5	2.3
b) including construction	2.72	-0.014 (-2.91)	0.287	14.9	11.1
Intermediate goods	1.91	-0.023 (-2.16)	0.181	6.6	4.0
Consumer goods	2.90	-0.053 (-8.88)	0.790	17.2	5.4
Manufacturing	2.79	-0.071 (-8.25)	0.764	15.1	3.2
Total industry (including construction)	2.35	-0.024 (-4.45)	0.485	10.3	6.1

(1) Regressions on the exponential function:

$rp = a\, e^{bt}$, or $\log rp = \log a + bt$

where: rp = net rate of profit on capital advanced
t = time (1,2, ... , 23)

The figures in brackets are Student's t.
Since the residuals are autocorrelated, a rigorous hypothesis test is not possible.

(2) Anti-logarithm of the theoretical value resulting from the regression.

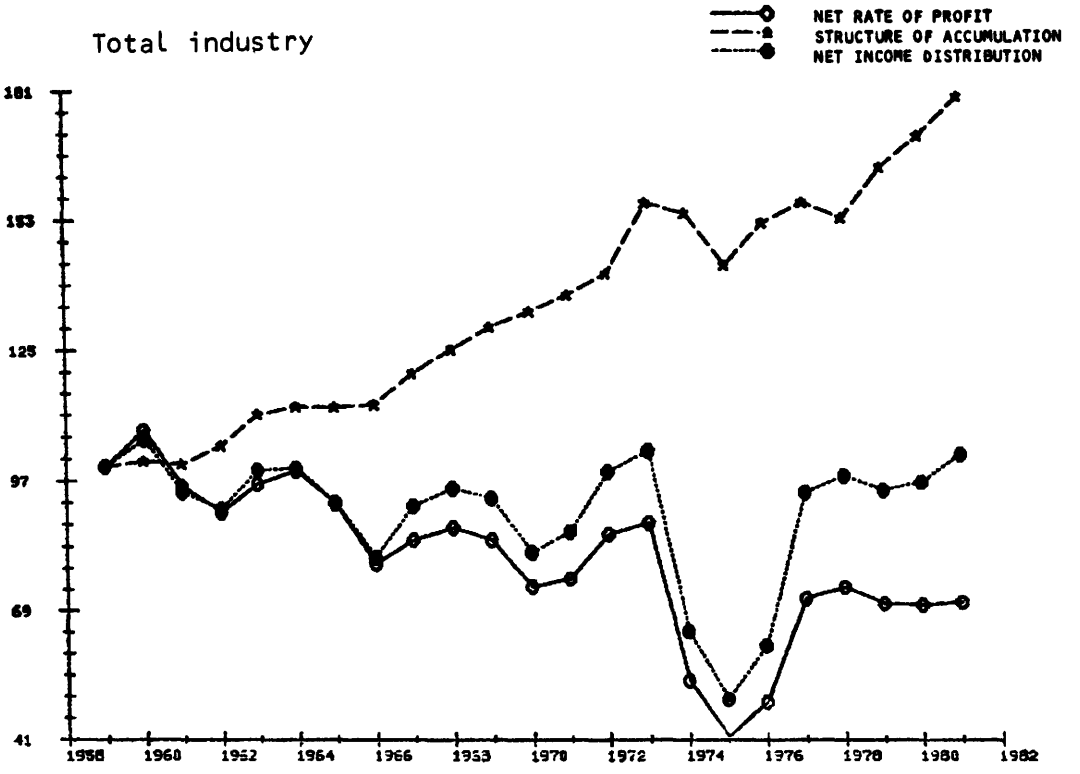
Table 3

Comparison of rates of profit (1)

	Rate of profit on capital advanced				Gross rate of profit on fixed capital	
	net		gross			
Investment goods	rate of change	index 1981	rate of change	index 1981	rate of change	index 1981
a) excl. construction	- 8.1	14.6	- 4.9	33.2	- 4.6	35.7
b) incl. construction	- 1.4	68.3	- 1.1	76.1	- 0.9	77.6
Intermediate goods	- 2.3	101.1	- 0.5 *	115.5	- 1.0 *	104.1
Consumer goods	- 5.3	22.1	- 3.6	38.8	- 4.5	31.9
Manufacturing	- 7.1	12.8	- 4.3	32.4	- 4.7	29.6
Total industry (including construction)	- 2.4	70.7	- 1.2	87.1	- 1.6	79.1

(1) The rate of change is that of the exponential trend for 1959-81 multiplied by 100. The parameters for which Student's t is less than 2 are indicated by an asterisk. The index for 1981 is established by taking 1959 as the base year.

FIG.2 - RATE OF PROFIT AND ITS COMPONENTS (indices 1959=100)



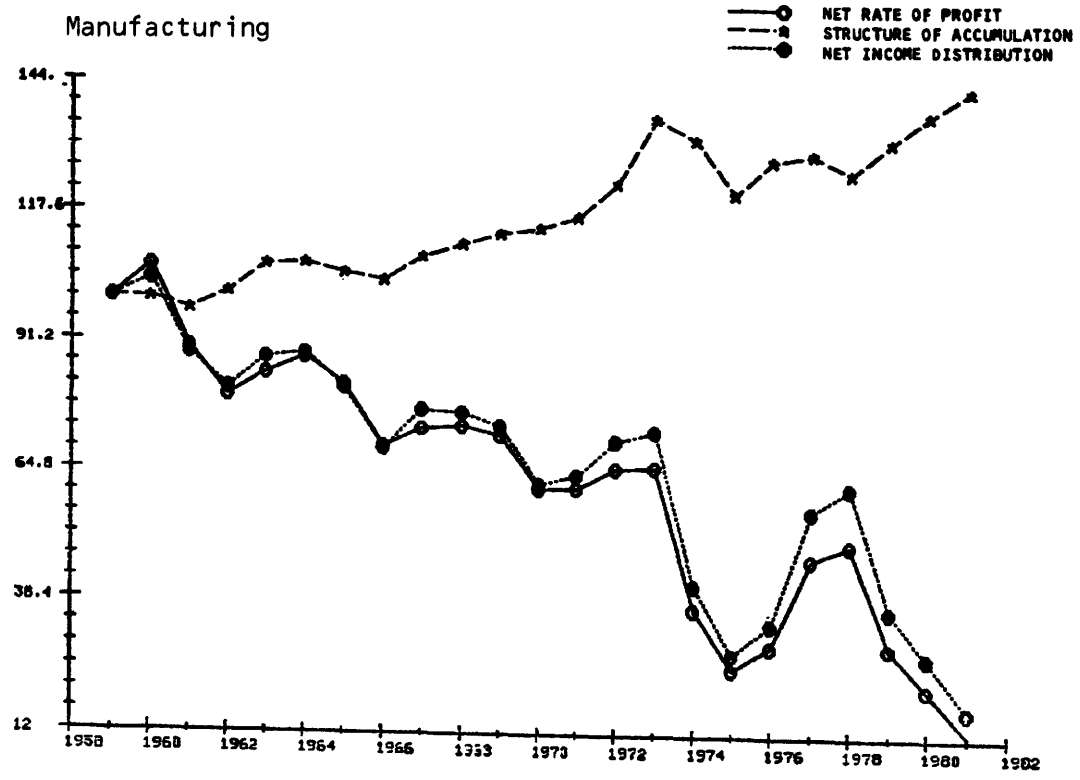
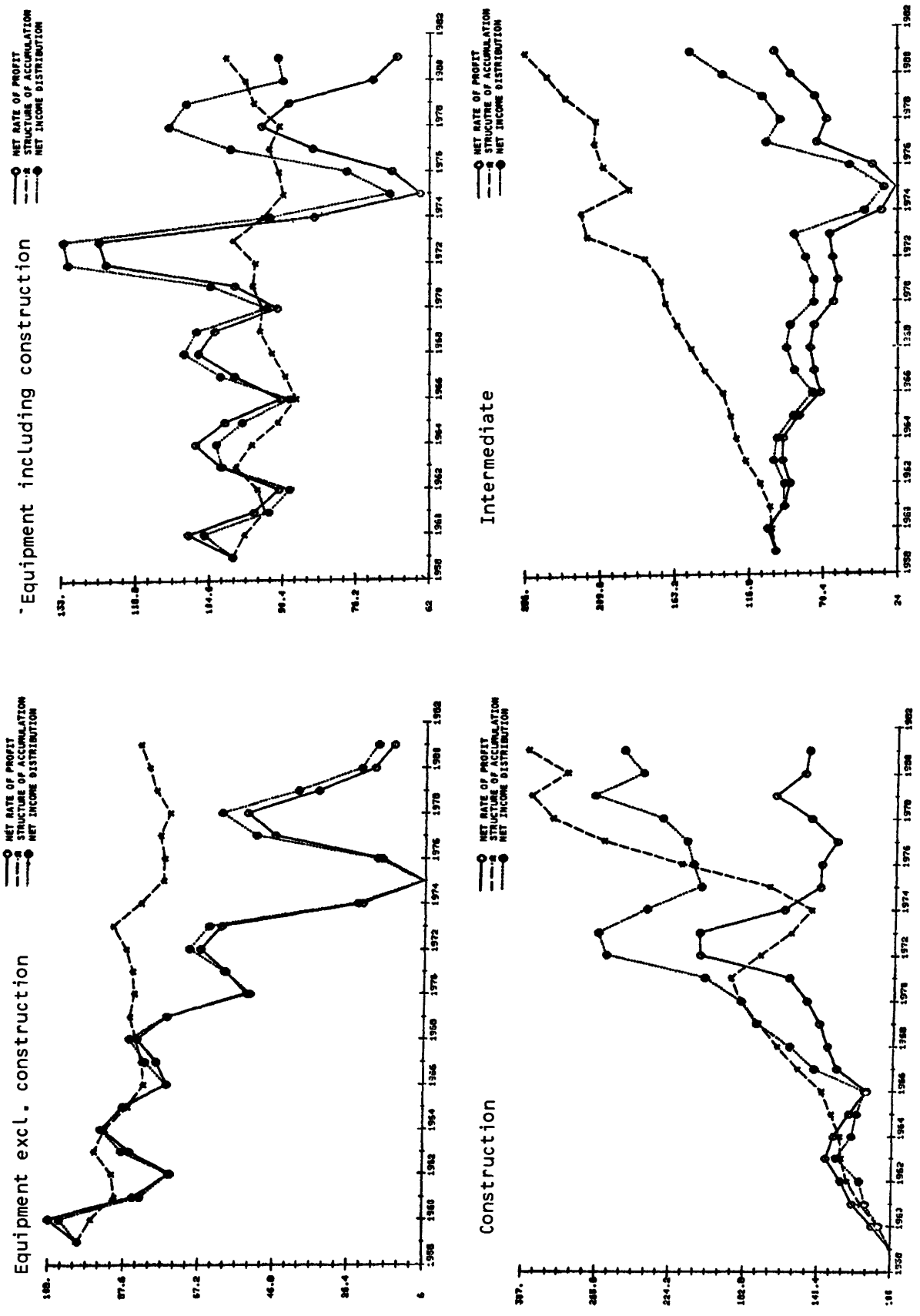
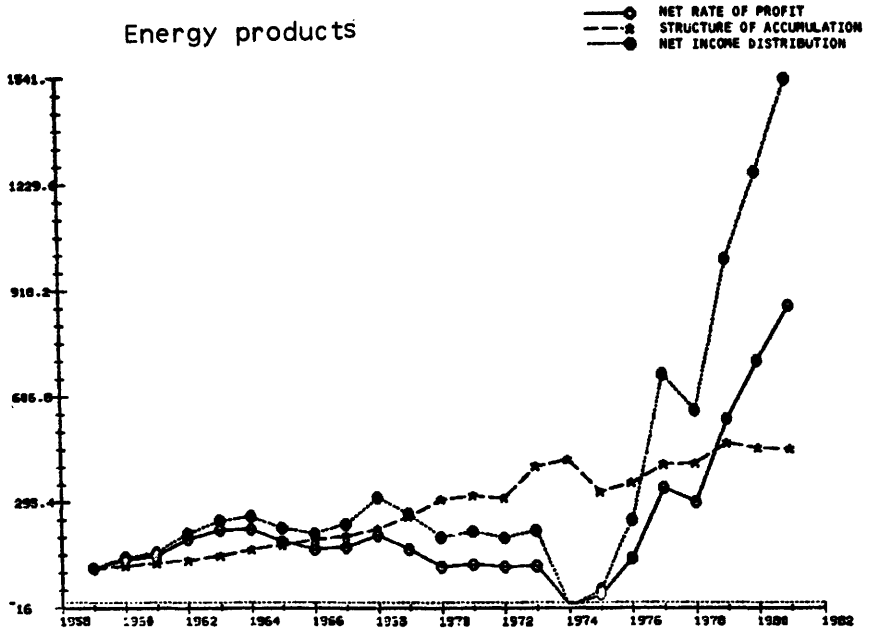


FIG. 2 RATE OF PROFIT AND ITS COMPONENTS (indices 1959=100)




Energy products
NET RATE OF PROFIT
STRUCTURE OF ACCUMULATION
NET INCOME DISTRIBUTION
1841.
1229.
918.2
606.8
295.4
-16
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982


Consumer goods
NET RATE OF PROFIT
STRUCTURE OF ACCUMULATION
NET INCOME DISTRIBUTION
197
162
127
92
57
22
1958
1960
1962
1964
1966
1968
1970
1972
1974
1976
1978
1980
1982

1960s, profitability was maintained at comfortable levels (1). If this branch is included in the investment goods sector, the sharp decline noted above is largely levelled out, as the rate of profit for sector I falls by only 1.4 % per year (relative to the exponential long-term trend). From 1959 to 1974, it follows a very regular "saw toothed" path, the fluctuations until 1970 being highly regular.

It is worth emphasising that the results described here, as well as those relative to the indicator of the structure of accumulation (paragraph IV), depends heavily on the capital stock evaluation, particularly post 1973. As already noted, the statistics of this aggregate, reflect only imperfectly the situation created by the increases of energy prices, which reduced the present value of that part of capital which is energy-specific. Moreover, the low degree of capacity utilization must have exerted a very important influence in the second half of the seventies.

3. The growing burden of depreciation had a substantial influence on the movement of the rate of profit, net profitability having declined much more than gross profitability (2) (Table 3). The sector where the

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(1) For example, in 1981 net profitability in construction was 49.1%, as against 1.6% in manufacturing.

(2) This influence of depreciation is not connected with the rising cost of investment goods for, at constant prices, the share of depreciation in gross value added exhibits much the same trend as this share at current prices. For example, for total industry (including construction) the share of depreciation in value added at constant prices was 7.9% in 1959 and 15.1% in 1981; at current prices these percentages were respectively 8.0% and 14.3%.

relative decline of the net rate of profit was the most marked was the intermediate goods sector, where the drop in net profitability was 4.6 times greater than the decline in gross profitability on capital advanced (Table 3). This is the sector in which the proportion of gross added value absorbed by depreciation was the highest: 12% in 1959 and 20.6% in 1981 (at current prices), against 8% and 14.3% respectively for total industry (including construction).

Here too energy products and construction have a different behaviour than the rest of industry. In the former branch depreciation accounted for a decreasing proportion of value added since 1975, and this reduction is much greater when related to gross profits. Thus, over the last seven years, net profitability increased much more than gross profitability.

In construction, the net and gross rates of profit on capital advanced followed almost identical paths,because depreciation accounted for a relatively stable share of gross profits.

4. Profitability in the consumer goods sector has almost always exceeded that of total industry, although the difference narrowed substantially in the last ten years (see the annexed tables showing the rate of profit and its components). From 1959 to 1970 the difference was 3.6 percentage points on average, whereas from 1971 to 1978 the difference was only 1.8 percentage points. In the period 1979 to 1981, the difference became negative.

During the 1960s, the investment goods sector excluding construction showed profitability levels very close to those of total industry: for 1959 to 1969 average difference was virtually nil. After 1970 profitability in this sector was below that of total industry. This negative difference widened over time; between 1970 and 1981 it averaged -2.8 percentage points.

In constrast, construction exhibited substantial and increasing positive differences: 32.7 percentage points on average between 1959 and 1970, 46 points between 1971 and 1981.

Profitability in the intermediate goods sector remained consistently below that of total industry, except in 1981; the average difference was -3 percentage points in the 1960s and -2.3 points in the 1970s. The energy products branch recorded larger negative differences, which nevertheless narrowed over time and became positive in the last three years.

IV. THE STRUCTURE OF ACCUMULATION AND ITS COMPONENTS

1. The indicator of the structure of accumulation which, as we shall see later, exerted an important influence on the movement of profitability, generally followed an upward trend (see Tables 4 and 5). For total industry (including construction) this indicator in 1981 stood 80% higher than in 1959, while for total manufacturing it was 44% higher. The sector showing the greatest increase was intermediate goods, where the level at the end of the period was more than two and a half times that at the beginning of the period. In the investment goods sector excluding construction, however, the level fell, but the trend appears almost flat if construction is included. In this sector, therefore, unlike the rest of British industry, the structure of accumulation - that is, the proportions in which capital is invested in the form of fixed capital and circulating capital for raw materials on the one hand, and in the form of wages on the other - did not exert any depressing influence on the rate of profit.

2. If the first method of breaking down the indicator of the structure of accumulation is used (formula VI), we see that, in general, the net effect of technological change was to increase the value of the indicator, which thus depressed profitability. For total industry, and for the intermediate goods and consumer goods sectors, the ratio of the capital intensity of production (QT) to productivity (PDT)(1) showed a long-run upward trend (see for example figure 3). Accumulation therefore was not efficient in the sense that the increase in capital per employee was reflected in a smaller rise in productivity (2).

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(1) The ratio between these two indicators gives the capital coefficient (fixed capital and circulating capital for raw materials per unit of output, at constant prices):

$$\frac{QT}{PDT} = \frac{KAV}{L} \cdot \frac{L}{VAV} = \frac{KAV}{VAV}$$

(2) $\frac{d\,QT}{dt} > \frac{d\,PDT}{dt}$

Table 4:

Long-term trend of the indicator of the structure of accumulation (sa) and its components

(average annual % rates of change of the exponential trend 1959-1981) (1)

Investment goods	sa	Formula VI				Formula VII	
		QT/PDT	PKA/PVA	$(W/VA)^{-1}$	r	$\frac{QT}{WRL}$	PKA/PC
(a) excluding construction	-0.87	0.66	0.85	-0.74	-1.63	0.50	0.27
(b) including construction	-0.01*	1.55	-0.36	0.06*	-1.27	0.96	0.29
Intermediate goods	4.37	0.93	0.66	0.61	2.17	1.63	0.57
Consumer goods	3.23	1.32	1.07	-0.60	1.45	1.47	0.31
Manufacturing	1.69	1.19	0.98	-0.76	0.28*	1.03	0.37
Total industry (including construction)	2.68	1.35	0.35	0.18*	0.80	1.42	0.46

(1) Parameters b of the function

$x = ae^{bt}$, or: $\log x = \log a + bt$

where x is each of the above variables, and t is time (1, 2, ... 23)

The 'Student' t values are in general very high (well above 5), but as the residuals are autocorrelated, it is not possible to carry out a rigorous hypothesis test.

The cases where Student t is less than 2 are indicated by an asterisk.

Figure 3 : The investment effort relative to its results (ratio QT/PDT)

Total industry

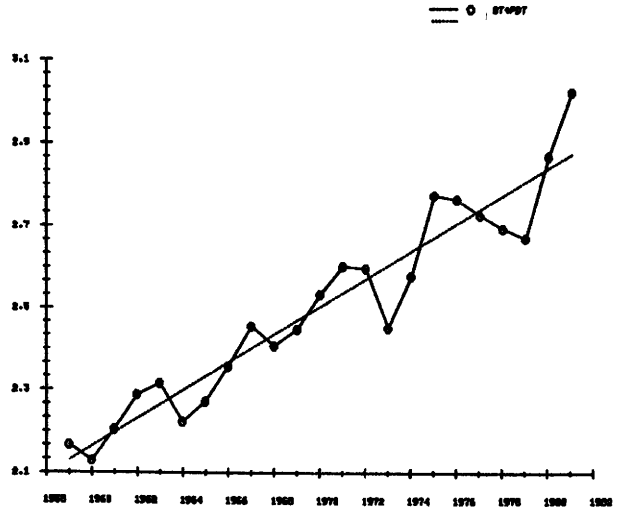

Table 5

Indicator of the strucutre of accumulation and its main components

	Indicator	Indices (1959 = 100)								Absolute values (a)	
		1962	1965	1968	1970	1973	1975	1978	1981	1959	1981
Investment goods (excluding construction)	sa	90.9	86.6	84.6	85.1	91.0	77.4	75.8	84.0	9.2	7.7
	QT	106.3	117.5	132.5	138.0	152.6	160.3	172.2	216.3	4,247.9	9,188.2
	PDT	102.1	112.8	128.5	131.8	152.1	153.1	155.7	166.0	2,182.1	3,623.2
	RWL	104.1	114.7	121.8	132.9	146.9	162.1	163.4	169.0	1,885.5	3,186.2
Intermediate goods	sa	109.7	128.0	152.7	168.6	217.0	191.1	211.9	256.0	15.2	38.8
	QT	113.9	128.0	157.0	169.9	194.5	205.6	230.2	274.2	9,157.3	25,110.4
	PDT	106.1	122.4	136.4	142.3	168.9	156.9	196.6	224.6	2,792.0	6,271.2
	RWL	105.3	115.5	120.3	130.9	144.6	165.8	166.7	184.0	1,912.4	3,518.3
Consumer goods	sa	106.1	117.1	126.9	136.6	164.6	160.0	173.2	196.5	10.7	21.1
	QT	112.6	129.4	152.3	168.9	186.5	212.3	230.7	275.6	4,048.2	11,156.1
	PDT	103.9	118.8	136.9	141.5	168.7	168.1	183.2	189.3	1,988.5	3,765.1
	RWL	106.1	118.9	129.3	139.5	164.1	175.5	174.9	186.2	1,422.0	2,647.3
Manufacturing	sa	101.1	105.2	111.2	114.6	137.2	122.0	126.6	143.8	10.7	15.4
	QT	110.7	122.4	140.6	150.4	169.6	182.3	199.9	245.3	4,994.6	12,252.1
	PDT	102.7	117.5	132.1	135.4	159.1	153.8	165.3	171.6	2,280.4	3,912.1
	RWL	105.1	116.8	124.0	136.0	151.3	166.3	168.0	176.8	1,734.5	3,067.4
Total industry (including construction)	sa	104.4	112.7	125.2	133.4	156.9	143.4	153.8	180.2	11.8	21.4
	QT	110.7	124.3	149.2	163.1	182.1	196.3	216.6	260.0	5,599.8	14,561.6
	PDT	104.8	118.5	134.3	139.6	161.0	153.4	174.3	186.5	2,584.9	4,820.1
	RWL	106.0	117.0	123.8	135.5	153.4	168.2	168.2	178.7	1,794.6	3,206.6

(a) QT, PDT and RWL are in UKL, at 1975 prices.

It is only in the investment goods sector, excluding construction, that capital accumulation has been relatively efficient, for until 1975 the ratio QT/PDT fluctuated round a flat trend. This particular feature nevertheless has disappeared over the last few years, as the ratio QT/PDT soared after 1976. If enterprises in this sector tried to stem the deterioration in profitability after 1979 by increasing capital per employee, such a strategy apparently did not pay off in productivity terms. When construction is included in sector I, QT/PDT shows an upward trend over the whole period: the results in productivity terms were therefore always inadequate relative to the investment required.

Sargent (1968, 1982) suggests that the persistent gap between investment outlay on the one hand and its effects in terms of productivity on the other, could be the result of excessively generous incentives to investment during the early 1960s. These helped to drive the growth of the capital stock above its equilibrium path with respect to the growth of output per head. This eventually pushed both capital productivity and the rate of return down. To further the analysis, one should examine more closely the causes which determine the level and changes of productivity, and link the growth of capital intensity of production to the aim of increased control of the production process on the part of management.

Actual productivity performance, whilst being a function of capital intensity of production, is not strictly determined by it, since it is a fact that with similar or even identical plant and machinery, production can vary widely (1). This absence of narrow correlation stems in part from the fact that production is a social process involving tension and struggle, and it is inconceivable that management will ever have complete control over these. The poor productivity performance of British industry, compared to capital intensity of production, could thus be explained by non participatory social relations, which has promoted a growing resistance among workers to the intensification of work (Hodgson 1982, p. 222). In this conflict model interpretation, the increase in capital intensity would reflect the attempts of enterprises to reach a more complete domination of the work force. The pursuit of this aim could have been helped by investment incentives.

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(1) See, for reference, the study review presented by Hodgson, 1982.

One can argue moreover that this aim of breaking free from the work worce in order to exert a better control over the production process is one of the fundamental reasons which determine technical change (1). One would therefore expect some trend increase in the capital intensity of production. Moreover, this movement has probably been influenced also by the growth of labour costs relative to the price of capital. It is, however, questionable whether it is meaningful to try to establish an inverse and monotonic relation between the variation of relative prices and the variation of the proportion of inputs employed(2).

3. The capital intensity of production (QT) increased in the same way in sectors II and III, reaching in 1981 a level two and three quarters times higher than in 1959 (see Table 4). The intermediate goods sector, which at the start exhibited a capital intensity more than double that of the other two sectors,thus increased its relative lead over sector I.

While showing relatively frequent cyclical fluctuations, the indicator in question rarely fell. It did so only in 1973 and 1974 for all sectors,and in 1960 for sector I.

4. Labour productivity rose at rather different rates, the strongest growth being recorded in the intermediate goods sector. As we have seen, this result was achieved by means of more sustained capital accumulation; which overall was nevertheless less "inefficient" than in the other sectors. The productivity index for sector II, although it was always below the index of capital intensity of production, at the end of the period showed the smallest gap.

In all sectors there were declines in productivity in phase with the troughs of the cycle. They were greater in 1974-75 and in 1980, with the exception of sector I (excluding construction), where productivity remained approximatively constant from 1973 to 1978.

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(1) In effect, industry has very great advantages in having mechanised production, since machines do not strike, cannot be absent, do not make claims for wage increases higher than the rise in productivity, etc...

(2) The inconsistency of the principle by which the substitution of factors is governed by the movements in the relative prices of factors has been demonstrated by the debate on the "reswitching of techniques", which took place following the work of Sraffa. Effectively, if a highly capital intensive technique which had been abandoned after an increase in the rate of profit is used again when the rate of profit becomes still higher, one can no longer say that substitution is inversely related to the price of capital. On these points, see Pasinetti (chapter VI).

5. The relative prices of capital advanced with respect to the prices of value added generally pushed up the indicator of the structure of accumulation. It is only in sector I including construction that the reverse occurred, but the weight of this factor was very slight. In sector I excluding construction, the influence of relative prices was stronger than that of technology; in the other two sectors it was weaker, but nearly as important as that of technical change (see table 4 for the long-run trend).

In constrast, if we consider the relative prices of capital advanced with respect to consumer prices (the second method of breaking down the indicator of the structure of accumulation),we see that the role of this factor remained negligible, the two price indices having followed similar paths.

V. INCOME DISTRIBUTION AND WAGES PER EMPLOYEE

1. The share of wages in value added (wage share) was characterized over the whole period by a rising trend in sector I excluding construction , sector III and total manufacturing,with very wide fluctuations in the years after 1973.

In sector II and total industry, in contrast, the wage share fluctuated around a sluggish trend up to 1973. There was a sudden rise in 1974 and 1975, followed by a sharp fall (1). This rise,, which occured in all sectors, seems to have been the result of a catching-up process following a period of incomes policy.

In sector I, including construction, there was no upward trend, the most salient feature being the exceptional spread of fluctuations in the 1970s (2).

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(1) In 1981, for example, the wage share in section II stood at 52.2%, against 65.7% in 1959 and 72.4% in 1975.

(2) This is also shown in table 4, where it can be seen that the coefficient relating to the reciprocal of the wage share, which is very low, is not statistically significant.

Construction and energy products, in contrast to the other sectors, showed a sharp decline in the wage share. In 1981 the wage share was 25% lower than in 1959 in the first branch, and more than 50% lower in the second branch.

2. This picture changes considerably if account is taken of the impact of the rate of turnover of circulating capital (r). As stated earlier, the rise in this indicator reflects a reduction in the relative weight of circulating capital advanced: all other things being equal, the share of the stock of circulating capital for wages in value added $(\frac{W/r}{VA})$ is reduced. The converse is true if r falls (the relative weight of circulating capital increases).

Table 4 shows that in two cases the rate of turnover of circulating capital considerably amplified the movements of the relative shares. This was the case for sector I excluding construction, where the fall in r strengthened the rise in the wage share, and for sector II, where the rise in r aggravated the fall in the wage share (1). In sector III and total manufacturing, however, it ran counter to the rising trend in the wage share. In section III, r rose so sharply that it overcompensated for the rise in the wage share. In 1981, for example, that share was 19% higher than in 1959, while the share of the stock of circulating capital for wages was 11% lower.

3. The income distribution ratio - another way of expressing the share of wages in value added (2) - shows the same cyclical profile, with the movements reversed, of course. The above considerations therefore apply "mutatis mutandis". The only substantial difference is that fluctuations in the income distribution ratio are wider than those in the wage share (3).

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(1) For example, in 1981 the index (1959 = 100) of the wage share and of the share of stock of circulating capital for wages was as follows:

W/VA : section I (excluding construction), 117.2; section II, 79.4

(W/r)/VA : section I (excluding construction), 176.4; section II, 49.0

(2) The relationship between these two distribution indicators may be expressed as follows:

$$\frac{W}{VA} = \frac{1}{1 + (S/W)} \qquad \text{(VIII)}$$

(3) This can be clearly seen from formula VIII.

As a result, the downward trend in sector I excluding construction, sector III and total manufacturing brough the net income distribution ratio down to particularly low levels at the end of the period (1).

Construction showed a very marked upward trend with few cyclical fluctuations (three cycles: 1959-66; 1966-75 and 1975-80). In 1981, the index of the income distribution ratio (base 1959) stood at 252.7, the peak for the whole period (268.8) having been reached in 1979.

The energy products branch first showed a strong upward trend until 1968, the income distribution ratio having more than tripled since 1959. From 1968 to 1974 the trend was reversed; the extremely sharp drop in 1974 brought this indicator to a negative level (-16). This was followed by a spectacular recovery, in 1981 the income distribution ratio being more than 15 times higher than in 1959. In the energy products branch, in contrast to other sectors, the gross income distribution ratio followed a very different path from the net ratio. From 1959 to 1973, the gross distribution ratio rose steadily (but less than the net ratio), the fall in 1974 was much smaller and the recovery over the last seven years was less striking.

4. The rise in the per capita real wage constantly lagged behind the increase in the capital intensity of production (Table 5). A comparison with productivity shows that, up to 1973, real per capita wages rose most of the time at a slower pace than productivity. After that period, the situation has varied greatly between the sectors. The beginning of the Seventies was marked by increased workers' militancy and strong social conflicts, which ended with a substantial increase in real wages (see Table 6). From 1974 to 1976, the index of the per capita real wage (base 1959) was higher than the productivity index, except in sector II (where this happened only in 1975). For manufacturing

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(1) In 1981 the index (1959 = 100) of this indicator stood at

18.7 in section I excluding construction

31.0 in section III

17.3 in total manufacturing.

and sector I, this gap maintained until 1981, becoming very large in sector I including construction. On the contrary, in sector III and total industry, from 1977 the productivity index once more attained a higher level than the real wages index. In sector II, this gap increased over time, becoming very large by 1981 (see Table 4).

Real per capita wages moved in cycles, which can be seen clearly from the data. From 1959 to 1970, all sectors showed three cycles (1959-62, 1962-67, and 1967-70), with an underlying low growth rate (2.8 % per year for total industry, see Table 6). In several cases (especially total manufacturing), the troughs of the cycle induced falls in the level of real wages. In the 1970s, there were two cycles (1970-77 and 1977-80) whose main features were:

- a sharp acceleration from 1971 to 1975: for total industry the average annual rate of increase rose to 4.4%;
- a large drop in 1977, which brought real wages down to a level close to that of 1974.

Table 6: Real wages and nominal wages per employee - annual average rate of change

	Real wages (a)			Nominal wages		
	1959-70	1970-75	1975-81	1959-70	1970-75	1975- 81
Investment goods						
(a) excluding construction	2.6	4.1	0.7	6.5	17.6	14.7
(b) including construction	2.9	3.9	0.3	6.8	17.4	14.3
Intermediate goods	2.5	4.8	1.7	6.4	18.5	15.9
Consumer goods	3.1	4.7	1.0	7.0	18.3	15.1
Manufacturing	2.8	4.1	1.0	6.7	17.6	15.1
Total industry	2.8	4.4	1.0	6.7	18.0	15.1

(a) Deflator: retail price index

5. In most sectors nominal wages per employee in 1981 were more than ten times the 1959 level. The change in the pattern of inflation in the 1970s caused a break which implied a different picture for real wages. Up to 1970 the curve of per capita nominal wages was as "flat" as the real wage curve, but the acceleration in the early 1970s (matching that of real wages) was not followed by any slowdown in 1975-50 (Table 6), because of persisting inflation.

The problem now is to determine the causes of the fall in the rate of profit. This will be done in two stages: first we consider nominal profitability, in order to measure the respective impacts of capital accumulation and changes in income distribution; then we analyse the effects of inflation which, by altering relative prices against the interests of industry, restricted its profitability.

VI. FALL IN THE RATE OF PROFIT AND CAPITAL ACCUMULATION

1. To establish the causes in the fall of the rate of profit we have to follow two different approaches. In the first, which falls within the framework of the definition of the rate of profit (formula II above), we must study the components of profitability: indicator of the structure of accumulation, income distribution ratio, rate of turnover of circulating capital. The other approach goes beyond this static framework,and leads to an enquiry into the reasons why value added for the sector in question did not reach higher levels. We must thus consider profitability in the wider context of the general economic situation, and also take into account other factors,such as relative prices in the sector (output prices compared with input prices).

Under the first approach, we see that two factors in particular have exerted downward pressure on the rate of profit. The first is the rise, described above, of the indicator of the structure of accumulation. The second is the trend in the income distribution ratio: Figure 2 shows that in general this ratio has closely followed fluctuations in profitability. We must then establish the respective weight of each of these factors.

This was done by estimating the long-run trend of the rate of profit and of its components. For this purpose, we used the logarithmic form of equation II, in order to derive expotential trend (1).

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(1) $\log p = \log \left(\frac{S}{W} \right) + \log \left(\frac{1}{1 + sa} \right) + \log r$

The estimated parameters, which show the average annual rate of change of the long-term trend, allow us to break down the variation in the rate of profit into its components. With a superscript point to indicate the rates of change we thus have:

$$\dot{p} = \dot{S/W} + \left(\frac{\dot{1}}{1 + sa}\right) + \dot{r} \qquad \text{(IIb)}$$

Of course, since formula IIb is merely an accounting identity in which all the variables are determined simultaneously, it cannot by itself tell us anything about the causal relationships between the variables. Nevertheless, some indications to how these links may be established have been provided in the earlier discussion.

2. Table 7 shows that for total industry and in the intermediate goods sector, the rise in the indicator of the structure of accumulation was the factor which had the greatest influence on the profitability trend. The fall in the rate of profit therefore stems more from capital accumulation than from changes in income distribution (1). This may seem rather surprising considering that one of the most common explanations for the decline in profitability in the United Kingdom is the profit squeeze resulting from wage increases (see Glyn and Sutcliffe 1972).

In the consumer goods sector, capital accumulation was not the predominant factor in the fall of profitability, although its weight was of about the same size as that of income distribution.

It is only in the capital goods sector excluding construction that the fall in the rate of profit is attributable to wage increases. The trend in this sector heavily influenced the results for total manufacturing, so that here too the decline in the rate of profit must be mainly linked with the fall in the income distribution ratio. In sector I including construction, however, neither changes in income distribution nor capital accumulation can

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(1) It can even be seen that over the whole period the coefficient of the income distribution ratio was not statistically significant. Over the period 1959-1974, however, the influence of changes in distribution was not negligible, although still much less than that of capital accumulation.

Table 7: Profitability and its components (equation IIb)
average annual percentage rates of change of the exponential trend (1)

	Period	p	ID	1+sa (2)	r
Investment goods					
(a) excluding construction	1959-81	- 8.14	- 7.28	- 0.77	- 1.63
(b) including construction	1959-81	- 1.40	- 0.14 *	- 0.01 *	- 1.27
Intermediate goods	1959-81	- 2.26	- 0.24 *	4.19	2.17
	1959-74	- 5.02	- 2.97	5.08	3.03
Consumer goods	1959-81	- 5.31	- 3.74	3.02	1.45
Manufacturing	1959-81	- 7.09	- 5.81	1.56	0.28 *
	1959-74	- 4.45	- 3.74	1.81	1.1
Total industry (including construction)	1959-81	- 2.40	- 0.68 *	2.52	0.8
	1959-74	- 2.58	- 1.23	2.87	1.52

p = net rate of profit of capital advanced
ID = net income distribution ratio
sa = indicator of the structure of accumulation
r = rate of turnover of circulating capital

(1) The trend was established by regression on the function $x = ae^{bt}$, or: $\log x = \log a + b.t$
where x is each of the above variables and t is time (1, 2, ..., 23)
The Student t values are in general very high (well above 5) but, as the residuals are autocorrelated, it is not possible to carry out a rigorous hypothesis test. The parameters for which Student t is less than 2 are indicated by an asterisk.

(2) It seemed preferable to present the coefficients of 1 + sa, rather than its inverse, in order to show immediately the direction of change of sa. To obtain the rate of change of p, make the algebraic sum of its components changing the sign for the coefficient of 1 + sa.

be seen as the cause of the slight fall in profitability (1), which must be attributed to the increased weight of circulating capital (fall of r). This factor also played an important part in other cases.

For total industry and in sector II, the rise in the rate of turnover of circulating capital more than offset the effects of the fall in the income distribution ratio. It may be noted in passing that this reinforces the above view on the causes of the decline in profitability. In the consumer goods sector, the increase in the rate of turnover of circulating capital cancelled out almost half of the downward pressure exerted on profitability by capital accumulation.

VII. PROFITABILITY AND INFLATION

1. There are three main aspects in the analysis of the impact of inflation on industrial profitability:

(i) gains on enterprises' financial liabilities stemming from inflation (2);

(ii) inflation and national accounts aggregates; in particular, taking account of stock appreciation;

(iii) inflation and relative price changes in the industrial sector.

2. Leaving aside gains (or losses) on financial assets, it can be said that the national accounts already incorporate the other fundamental effects of inflation on profitability. Fixed capital and depreciation at current prices are shown at replacement cost, which reflect both the increased value of the investment goods in use stemming from inflation and the increasing cost of replacing them.

On the profit side, the national accounts conventions exclude profits resulting from the fact that inflation increases the value of stocks of raw materials and of finished products. There is a reason for this method, since stock appreciation gives rise to actual profit only when

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(1) This result is due to the trend in construction, where there was a sharp increase in the income distribution ratio (exponential growth of 4.63% per year) which was almost entirely offset by the rise in the indicator of the structure of accumulation, 1+sa having risen by 4.3% per year. The rate of turnover of circulating capital increased by 1.28% per year (exponential trend). Over the whole period the rate of profit thus rose by 1.6% per year.

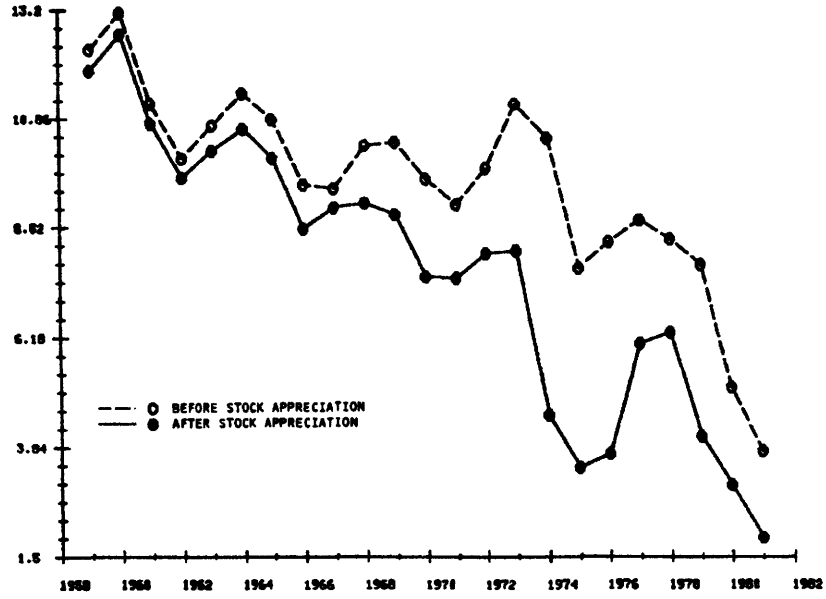
(2) This very important point is being thoroughly investigated in work on inflation accounting and will not be discussed here.

enterprises realise the value of their stock. As management techniques are now more sophisticated, it may nevertheless be assumed that most of the time this actually happens. It is therefore reasonable to add stock appreciation to profits. This is also justified by the fact that in any case inflation raises the value of circulating capital advanced measured at current prices, and that a proper calculation of profitability must not ignore its effects on the size of profits.

For British industry, this adjustment can easily be made (at least at aggregate level) because the CSO publishes estimates of stock appreciation for manufacturing (1) as well as for mining and quarrying, construction, and gas, electricity and water. Figure 4 shows that for manufacturing stock appreciation

Fig. 4 : Profitability and stock appreciation

Manufacturing



is by no means negligible,and its impact became very important in the 1970s.

(1) Manufacturing as defined by C.S.O. (until 1981) slightly differs from "manufacturing" used in this paper for purpose of comparability with the E.S.A.,because the C.S.O. definition also includes coal and oil products, which in the classification adopted here fall under energy products.

Even the long-run trend is modified: taking the whole period, profitability including stock appreciation declines much less than the unadjusted rate of profit (1); moreover, leaving aside the drop in the last two years, the downward trend virtually disappears (2).

3. One of the fundamental features of inflation - which gives it its destabilizing power - is the change in relative prices it creates. Of course this is not a negative process in itself. For example, it is a normal manifestation of the life cycle of high technology products. However, to be a "physiological" phenomenon, the relative prices in a sector must fluctuate in both directions. If it was found that over a long period change was always in the same direction (downwards for example) this would be the symptom of a structural problem in the country in question. This perverse process is precisely what happened in British industry (3). Distortions in relative prices have given rise to transfers of potential profits in two directions: (a) within the industrial sector itself, towards the investment goods branches; (b) towards the tertiary sector: retail distribution of wage goods and other goods and services in the cost-of-living basket.

To gain a clearer idea of such transfers of potential profits, the rate of profit at current prices must be compared with the rate of profit at constant prices.

---

(1) Taking the long-run exponential trend, it will be noted that the rate of profit including stock appreciation declines by 3.1% per year, while the decrease in unadjusted profitability is more than double (6.4% per year).

(2) Over the period 1959-79, the rate of profit including stock appreciation declined by 1.9% per year (exponential trend), and nominal profitability by 5.3% per year.

(3) It has also happened in Italy (see doc. II/63/83 p. 19 et seq.). However, it cannot be taken as occurring generally since it has not been observed in Germany (doc. II/275/82).

For this purpose, let us write the difference between these two rates of profit (dp):

$$dp = \frac{VA - W}{KA} - \frac{VAV - WV}{KAV} \qquad (IX)$$

where VA = value added, at current prices

W = wages

KA = stock of capital advanced, at current prices

V = volume

Expressing all the data at constant prices (1), equation IX becomes:

$$dp = \frac{VAV}{KAV}\left(\frac{PV}{PKA} - 1\right) - \frac{WV}{KAV}\left(\frac{RP}{PKA} - 1\right) \qquad (X)$$

Working on the provisional assumption that retail prices follow production prices (i.e. $\Delta PV = \Delta RP$), formula X appears as a transformation of the rate of profit at constant prices:

$$dp = \left(\frac{PVA}{PKA} - 1\right)\frac{SV}{KAV} \qquad (XI)$$

where SV = profits at constant prices (deflated by output prices).

The nominal rate of profit therefore diverges from the rate of profit at constant prices as a function of the moving pattern of relative prices. In particular, if for a given rate of profit at constant prices the prices of capital employed by an industrial branch increase faster than the output prices of its products (PV), this depresses the nominal rate of profit compared with the rate at constant prices. The inflationary process, by changing relative prices, thus brings about a transfer of potential profits from the weaker branches to the stronger branches (investment goods).

---

(1) Using the following relationships

$$VA = VAV \cdot PV$$
$$KA = KAV \cdot PKA$$
$$W = WV \cdot RP$$

where PV, PKA and RP are respectively selling prices, prices of capital advanced and retail prices.

If we now abandon the assumption that production and retail prices move together, we can express the latter as a function of the former:

$$RP = PV + \delta$$

Equation (X) can now be rewritten as follows:

$$dp = \left(\frac{PV}{PKA}\right) - 1 \frac{SV}{KAV} - \frac{\delta}{PKA} \cdot \frac{WV}{KAV} \qquad (Xa)$$

If retail prices rise faster than industrial output prices ($\delta > 0$), equation Xa shows that, all other things being equal, this further reduces the nominal rate of profit (1). This is because there are wage increases whose sole purpose is to compensate for the increase in the cost of living, and which enterprises cannot pass on their prices. By this means the inflationary process also exerts a perverse effect on industrial profit through transfers of potential profits to the branches of wage goods. This point calls for further comment, for the impression might be given that the employees' share of responsibility in the decline of profit, which had been ruled out (equation XI), has now re-emerged (equation Xa).

It can be said that employees are in fact responsible for lower profits only when there is a change in their relative strength. For that to come about, it is not enough that there should be a rise in nominal wages representing the trade unions' success in preserving the purchasing power of the employees (2); there must also be an increase in the real wage. If there is no such increase but we observe at the same time a decline in profit, this decline would be attributable to inflation rather than to trade union claims.

Let us now see whether the foregoing is confirmed by the data for British industry. It should be noted that the analysis will be based on long-run tendencies, and will therefore ignore purely short-term movements.

---

(1) The term δ/PKA measures the relative intensity of the influence on profit of retail prices compared with the prices of capital.

(2) It should be remembered that stable purchasing power of wages is also in the interest of business generally, since it ensures that output will find markets.

4. For this purpose we have deflated the rate of profit (1). In this way the total wage and salary bill reflects only changes in the number of employees and the growth in real wages; this makes it easier to pinpoint this latter element.

The argument that the drop in profitability is attributable to the deterioration in industry's terms of trade is fully confirmed by the data when, over a long period, a decline in the nominal rate of profit is accompanied by a rising or unchanged rate of profit at constant prices. If the rate of profit at constant prices also declines, but to a lesser extent than the rate of profit at current prices, the argument applies only in part, for the changing terms of trade only partly explain the fall in nominal profitability. The argument is invalidated when both rates of profit fall in parallel.

The data in Table 8 show that the movement of relative prices has played a fundamental role in squeezing industrial profit. It can be seen that in the intermediate goods sector, the consumer goods sector and total manufacturing the rate of profit at constant prices fell much less than nominal profitability (2).

---

(1) The price indices used (base 1975) are the following:

- the implicit price deflator for fixed capital. Note that, as fixed capital at current prices is valued at end-of-year prices, this index shows values slightly above 100 for the base year;
- retail prices for wages;
- prices of raw materials and fuel purchased by industry, for intermediate consumption;
- prices of value added as proxy for sales prices, because a series of these prices has not been published.

Value added at constant 1975 prices, which was used to obtain the price deflator, was calculated on the basis of the index of industrial output at constant prices at factor cost, published in the 1982 Blue Book (pp. 20-21).

(2) Note that for section II the trend coefficient for profitability at constant prices (-1.03) is statistically not different from zero.

Table 8: Nominal profitability and profitability at constant prices 1959-81

	Exponential trend (1)		Price indices (1959 = 100) (2)				
	RVO	RN	PV	RP	PKA	K	of which CI
Investment goods							
(a) excluding construction	- 6.37	- 8.14	528.2	608.1	600.9	600.6	609.7
(b) including construction	- 4.30	- 1.40	686.6	608.1	606.8	600.4	635.1
Intermediate goods	- 1.03*	- 2.26	627.0	608.1	644.3	638.8	695.5
Consumer goods	- 1.45	- 5.31	502.8	608.1	601.2	633.6	501.3
Manufacturing	- 3.20	- 7.09	514.3	608.1	611.5	619.5	576.8
Total industry	- 2.46	- 2.40	629.5	608.1	627.9	628.6	625.3

RVO = net rate of profit on capital advanced at constant prices

RN = net rate of profit on capital advanced at current prices

(1) Average annual rates of change obtained by regression on the function: $x = ae^{bt}$, or $\log x = a + bt$
where : x is RVO and RN, and t is time (1, 2, ..., 23)

* = Student t value less than 2.

(2) The symbols for the price indices concern the following aggregates: PV = output
RP = retail prices
PKA = capital advanced
K = net fixed capital
CI = intermediate consumption

To give a clearer idea of the long-run trend, the original indices, base 1975, are expressed on base 1959.

This result stems from the fact that enterprises were unable to pass on their selling prices(1) the higher cost of investment goods and wage rises covering cost-of-living increases (2).

The case of the investment goods sector is worth looking at. Excluding construction, the sector as a whole was to some extent penalized by the movements of relative prices, as nominal profitability fell more than profitability at constant prices. This is the combined outcome of varying situations in the different branches. Three branches were clearly disadvantaged by the trend of relative prices, with falling nominal profitability and rising profitability at constant prices. These were mechanical engineering, instrument engineering and electrical engineering. In contrast, shipbuilding and vehicles benefited slightly from inflation, as nominal profitability declined less than the rate of profit at constant prices.

The situation is very different if construction is included in sector I, as the sharp rise in selling prices for that branch reversed a steep downward trend in profitability at constant prices. This determined the trend for the whole of sector I including construction, where it can be seen that the sharp drop in profitability at constant prices (-4.3% per year, Table 8) was accompanied by only a slight decline in the nominal rate of profit (only -1.4% per year).

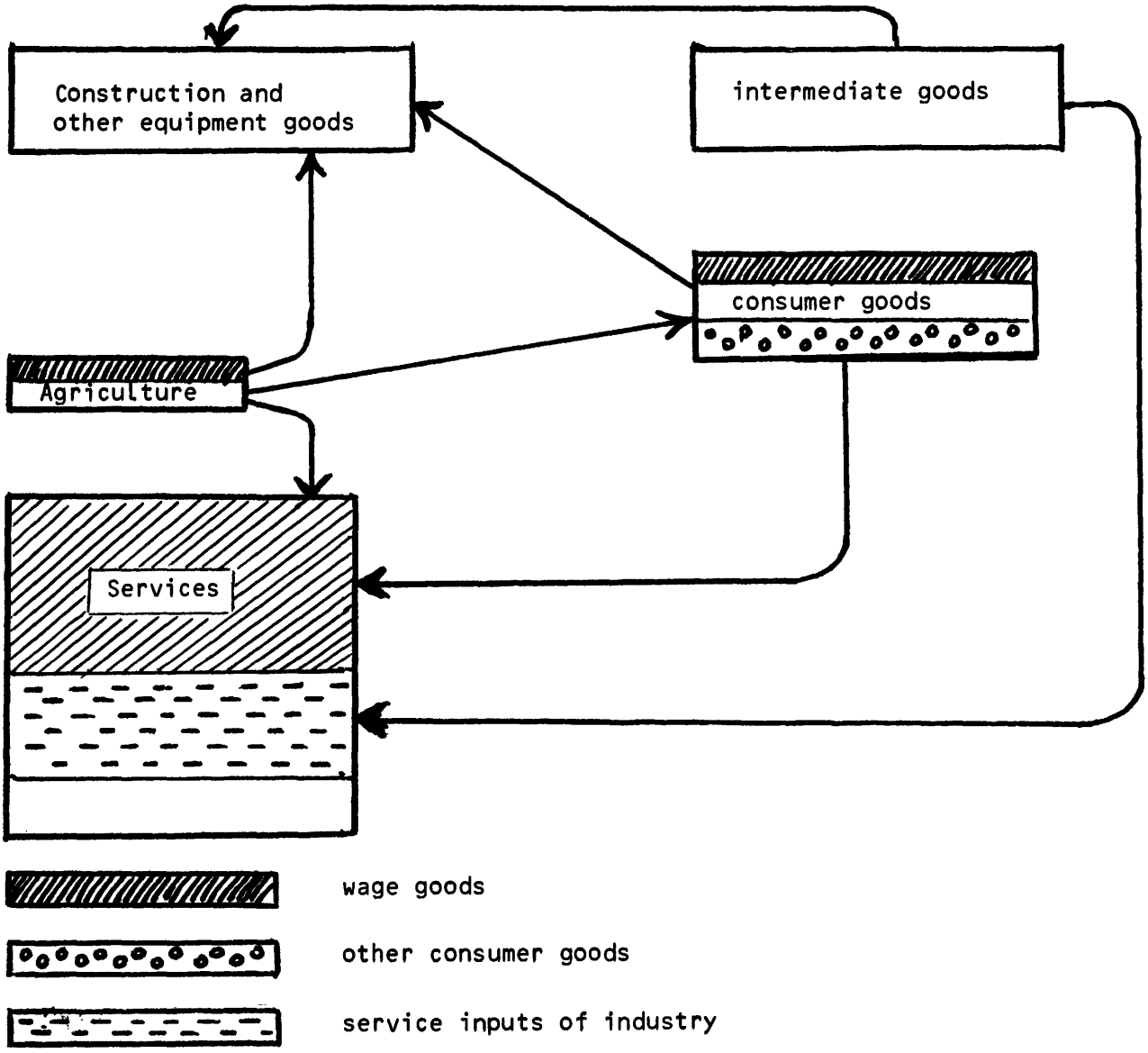
---

(1) The method for estimating added value used in this study means that the price deflator used closely reflects the trend of output prices. To determine value added at constant prices we used the index of industrial production at constant 1975 prices which, as stated in the 1982 Blue Book(p. 20), is based on output.

(2) As wages in the United Kingdom are not index-linked, it is not strictly possible to establish such a direct connection with the cost of living. However, there is no doubt that in the annual rounds of wage bargaining the cost of living is a decisive factor in what the trade unions manage to obtain. Consequently, it could be argued that the main difference between the British system and the system in countries with full or partial automatic indexation is that, in the United Kingdom, cost-of-living increases are reflected in earned income with a greater time-lag, i.e. annually rather than monthly or quarterly.

The movement of relative prices described above thus brought about transfers of potential profits to construction (and to another part of the investment goods sector), the distributive trades and other services (mainly through rises in the cost of living); the process is shown in Figure 5 (1). Without seeking to deny the basic antagonism between profits and wages, in this case it can be said that the main enemy of industrial profit was inflation rather than wages. Of course this must not be taken to mean that industrial prices ought to be further increased, as what is needed is alignment downwards, not upwards.

Figure 5: Transfers of potential profits over the period 1959-81



(1) Agriculture did not benefit from transfers of potential profits, as farm prices rose less than industrial prices.

Part 2

VIII PRODUCTION CYCLES AND PROFITABILITY CYCLES

1. The identification of profitability cycles did not raise any major problems of method, because the movements reflected by the data are wide enough to pinpoint troughs and peaks without further elaboration.

The volume of output (value added at factor costs) also declined or slowed down markedly on occasion during the period, so that production cycles can also be identified simply by examining the graph of absolute values. However, for the purpose of studying the correlation between production and the rate of profit, deviations from the long-term trend of production had to be measured, and this involved a regression to establish the trend line.

In three cases the most suitable function for the calculations was a spline regression: sector I excluding construction , where the trend changed in 1972; sector I including construction , where the trend changed in 1971; and sector III, where the break point was also in 1971. A linear function (no break point) was used for the intermediate goods sector, and a polynomial of the second degree was preferable statistically for total industry. The curve for manufacturing showed a possible minimum early in the period, in 1962; the problem this raised was solved by carrying out regressions for the sub-period 1959-71.

2. For the period as a whole, there were five rate-of-profit cycles (see Table 9). The first three, during the 1960s, each lasted three or four years (1959 - 62; 1962 - 66; 1966 - 70), and they were almost perfectly synchronized between sectors. The only deviations observed were during the third cycle, where the trough for sector II appears in 1971, and the peak for sector III in 1967 (instead of 1968).

The cycles lengthened in the 1970s, and the movements widened considerably (see Figures 6 and 7).

3. In line with the other European countries, in 1973 there was a clear break in the trend of real output in British industry. From 1959 to 1973, real output expanded in the UK at an annual average rate of around 3%. Between 1973 and 1981, however, output contracted on average. The decline was particularly serious in the investment goods sector including construction, where 1981 output had fallen back to the 1963-64 level (1), but it was almost as bad in the other sectors, apart from intermediate goods.

Around this trend there were five cycles, each lasting four to five years. During the 1960s, the fluctuations were fairly small and showed regular and symmetrical two-year upswings and downswings. They became much wider in the 1970s, with the last cycle from 1975 to 1981 being much longer than the earlier ones.

By comparing profitability cycles with production cycles, we can now establish which of the two model, "demand/investment" or "profits/investment", provides the better interpretation of the dynamics of British industry. More precisely:

(i) if peaks and troughs in the rate of profit anticipate peaks and troughs in the volume of output by at least one period, the "profits/investment" model would seem to offer a more appropriate description of events;

(ii) if the production cycle anticipates the profitability cycle, the "demand/investment" model would be preferred.

---

(1) This result is heavily influenced by the decline of construction output, which had returned in 1981 to a level equivalent to that reached between 1960 and 1961.

Table 9: Profitability and production cycles

	Profitability (a)					Production (c)		
Sector	Cycles		Troughs %(b)	Peaks %	Peaks year	Cycles		Peaks
Investment goods (excluding construction)	I	1959-62	10.9	11.8	1960	I	1959-63	1960
	II	1962-66	8.2	10.2	1964	II	1963-67	1964
	III	1966-70	8.3	9.2	1968	III	1967-72	1969
	IV	1970-75	5.9	7.3	1972	IV	1972-76	1974
	V	1975-81	0.7	5.9	1978	V	1976-81	1979
			1.6					
Investment goods (including construction)	I	1959-62	13.7	14.9	1960	I	1959-63	1961
	II	1962-66	12.5	14.7	1964	II	1963-67	1964
	III	1966-70	12.4	14.6	1968	III	1967-71	1969
	IV	1970-75	12.5	17.2	1973	IV	1971-76	1973
	V	1975-81	8.7	13.0	1978	V	1976-81	1978/79
			9.4					
Intermediate goods	I	1959-62	7.2	7.6	1960	I	1959-62	1960
	II	1962-66	6.5	6.8	1964	II	1962-67	1965
	III	1966-71	5.2	5.6	1968	III	1967-72	1969
	IV	1971-75	4.4	4.8	1973	IV	1972-75	1973
	V	1975-...	1.8	7.3	1981	V	1975-81	1979
	Va	1975-78	1.8	5.3	1977			
	Vb	1978-...	4.9	7.3	1981			

(a) net rate of profit on capital advanced;

(b) rate of profit at the beginning of the cycle, except for the last figure, which refers to the end of the cycle;

(c) value added at factor cost (constant 1975 prices).

Table 9 (continued)

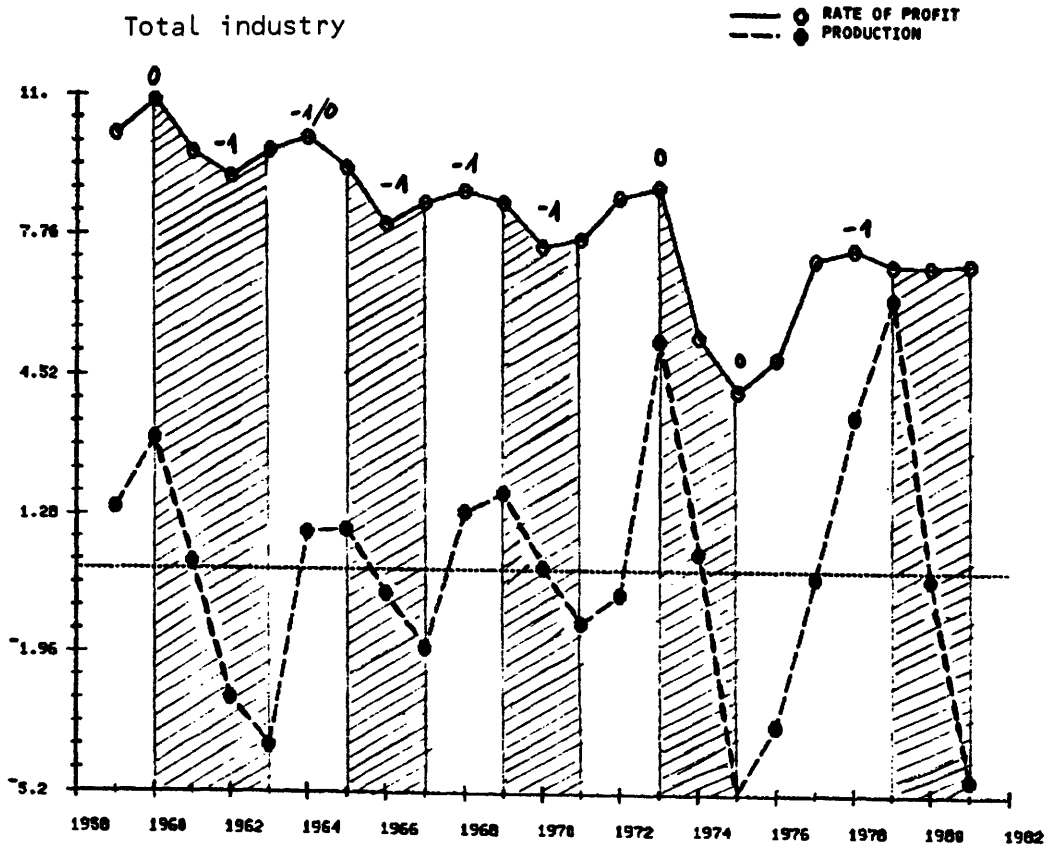
	Profitability (a)					Production (c)		
	Cycles		Troughs %(b)	Peaks %	Peaks year	Cycles		Peaks
Consumer goods	I	1959-62	14.5	16.1	1960	I	1959-62	1960
	II	1962-66	12.9	13.9	1964	II	1962-67	1964-65
	III	1966-70	11.2	11.6	1967	III	1967-71	1968
	IV	1970-75	10.4	11.2	1973	IV	1971-75	1973
	V	1975-81	6.2	9.0	1978	V	1975-81	1979
			3.2					
Manufacturing	I	1959-62	12.6	13.3	1960	I	1959-62	1960
	II	1962-66	10.1	11.1	1964	II	1962-67	1964
	III	1966-70	8.8	9.3	1968	III	1967-71	1969
	IV	1970-75	7.7	8.3	1973	IV	1971-75	1973
	V	1975-81	3.2	6.4	1978	V	1975-81	1979
			1.6					
Total industry	I	1959-62	10.1	10.9	1960	I	1959-63	1960
	II	1962-66	9.1	10.0	1964	II	1963-67	1964-65
	III	1966-70	8.0	8.8	1968	III	1967-71	1969
	IV	1970-75	7.5	8.9	1973	IV	1971-75	1973
	V	1975-80	4.2	7.5	1978	V	1975-81	1979
			7.1					

(a) net rate of profit on capital advanced;

(b) rate of profit at the beginning of the cycle, except for the last figure, which refers to the end of the cycle;

(c) value added at factor cost (constant 1975 prices).

FIG. 6 RATE OF PROFIT AND PRODUCTION CYCLES



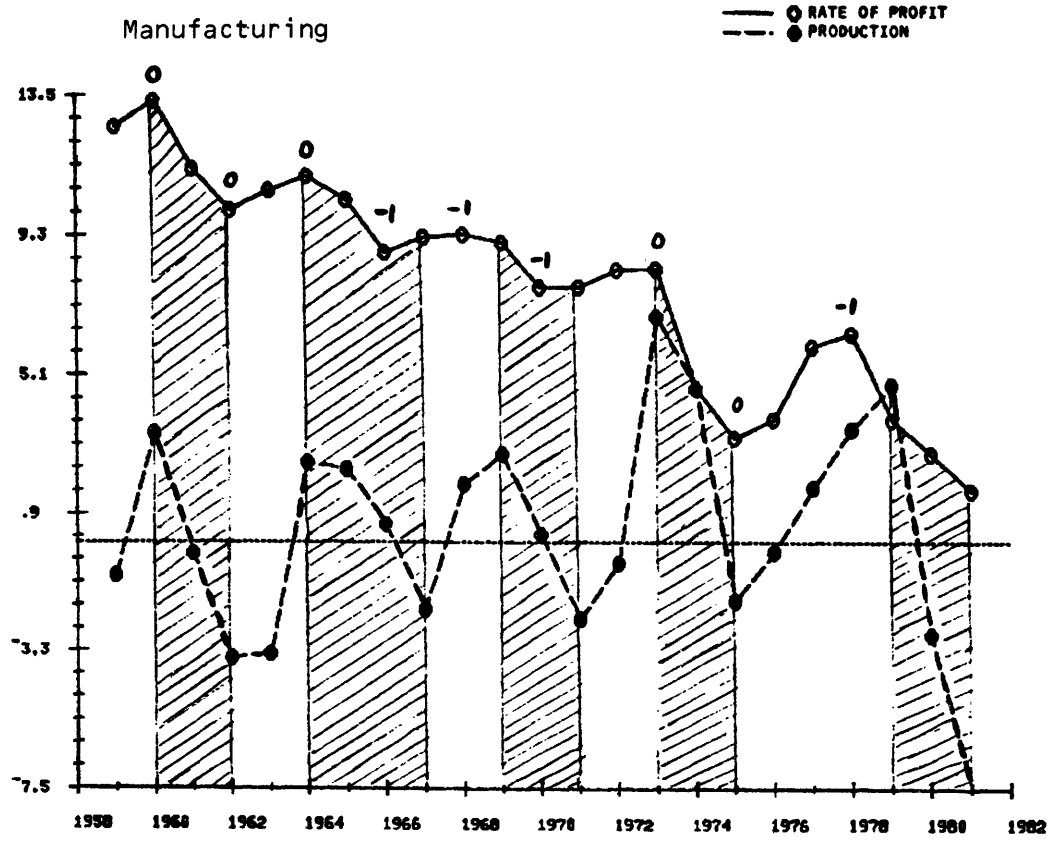
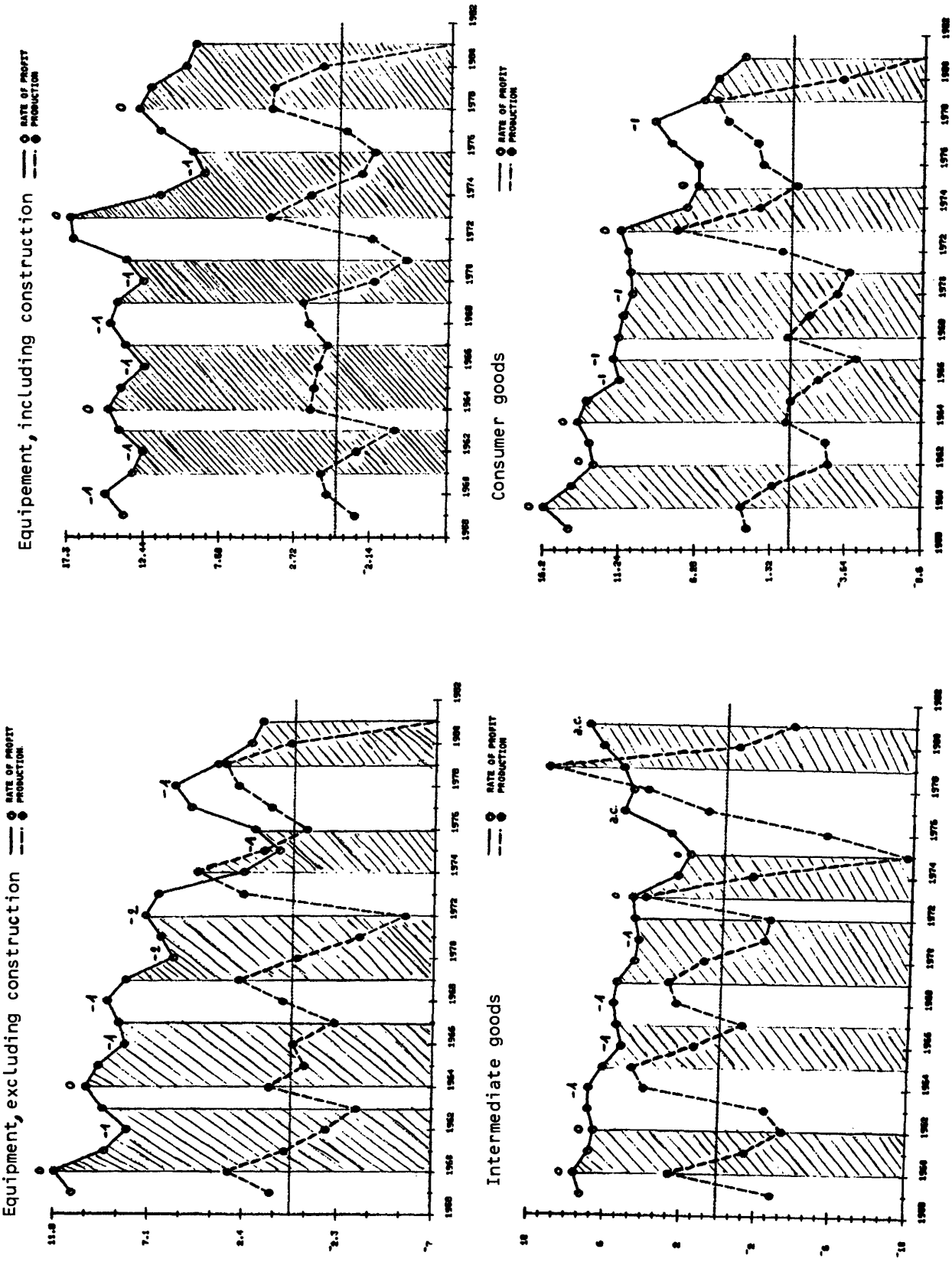


FIG. 7 RATE OF PROFIT AND PRODUCTION CYCLES



(iii) if the cycles coincide, no definite conclusion can be drawn from annual data. In fact, synchronized cycles would support the case for the "demand/investment" model, but full confirmation requires a study of data for shorter periods (e.g. quarterly data), because the apparent synchronization of cycles observed using annual data may mask considerable time lags supporting the alternative model.

4. The comparison provides good evidence for the "profits/investment" hypothesis. In fact, there is very close correspondence in cycle length of rates of profit and output, and the production cycle is usually lagged in exactly the way predicted by the model (see Table 9 and Figures 6 and 7) (1). The quantitative analysis in Table 10, showing the results of the regression of production cycles on profitability cycles lagged by one year, confirms the conclusion (2).

For total industry the lag of one year in peaks and troughs is almost always apparent. Exceptions are observed (see Fig.6) early in the period (the two peaks coincide in 1960), in 1973 and 1975 (extremes coincide), and in the last three years of the period, where output falls and this is not justified by the stationary evolution of profitability. The coincidence of troughs in 1975 was probably due to the severe recession, which decisively affected the rate of profit. Because of these anomalies, good results are obtained from the regression of output on profitability only for the period 1962-79, with a dummy variable to offset the absence of a lag in the mid-1970s (see Table 10).

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(1) The findings of a study by the Confederation of British Industry (quoted in Adams et alii , 1982, p. 115) confirm this observation, as they show a clear connection between the rate of profit and the investment ratio in industrial and commercial undertakings, from 1960 to 1980. The cycles are almost always lagged by one or two years.

(2) It should be borne in mind that simple regression methods are not the most suitable means of testing the "profits/investment" model, because the lag between profitability and production may vary from one cycle to the next in the same sector, or peaks may coincide even if troughs are lagged as predicted by the model. The variability of the lag (which does not in fact refute the model) causes non-significant results from the regressions.
On the other hand, considering the small sample size, it is not really appropriate to apply a nonparametric test in order to establish whether or not the lag in the phasing of peaks and troughs is the result of a random process.

Table 10 Profitability and production cycles (regressions) (1)

	periods (2)	a	b	c	dummy variable		$\bar{r}^2$	DW
					d	year(2)		
Investment goods:								
(a) excluding construction	1961-81	- 0.436	0.992 (3.28)		7.73 (3.29)	1973	0.541	1.71
(b) including construction	1961-80	- 0.681	1.494 (6.24)	0.214 (3.26)			0.661	1.85
Intermediate goods	1962-77	2.027	4.629 (5.66)		- 8.269 (- 3.33)	1974	0.708	1.82
Consumer goods	1962-72 and 1976-81	0.148	1.937 (4.72)				0.571	1.46 (3)
Manufacturing	1962-81	0.357	1.915 (4.81)		6.151 (2.57)	1973	0.638	1.59
Total industry	1962-79	1.087	2.020 (5.7)		- 6.513 (- 3.56)	1974	0.704	2.04

(1) Parameters of the regression: $\Delta DRT_t = a + b\Delta RP_{t-1} + c\,(\Delta RP_{t-1})^2 + d\,D$

where: ΔDRT_t = first differences in deviations from the trend of output in volume at time t

ΔRP_{t-1} = first differences in the rate of profit at time t-1

D = dummy variable = 1 for the year shown, 0 in other years

Figures in brackets are Student "t" statistics.

(2) Periods refer to production data.

(3) Result after adjustment for autocorrelation of residuals (rho = 0.469)

The profile of cycles in manufacturing is similar to that in total industry, except that profitability declined as well as output in the last two years of the period (see Fig.6).

In the investment goods sector excluding construction, there is a clear connection between the rate of profit and output, although production was lagged by two years from 1972 to 1974. A dummy variable was therefore introduced into the regression to allow for the effects of variability in the lag (which is not inconsistent with the "profits/ investment" model), and statistically satisfactory results were obtained (adjusted r^2 = 0.54; see Table 10). The coefficient of 0.992 for the rate of profit shows that a one-point change in that rate leads, in this sector, to a smaller change in the percentage deviation of production from its trend. As the b coefficients in Table 10 show, for the other sectors changes in the rate of profit lead to much larger changes in production.

The connection between profitability and production is even better in the investment goods sector including construction. As Fig. 7 shows, the only occasions where the one-year lag does not appear are the peaks of 1964, 1973 and 1978. The best statistical fit is obtained using a quadratic function that reflects the operation of an "acceleration" mechanism: when changes in profitability in this sector exceed a certain threshold, their relative repercussions on production are amplified.

The link between the rate of profit and the output is not apparent in the intermediate goods sector at the end of the period,when the downswing in the production cycle (1979-81)coincides with an upswing in the profitability cycle,due to developments in the energy products branch.

Profitability and production cycles are more likely to coincide than to be lagged in the consumer goods sector (see Fig.7). However, the regression using a one-year lag does give fairly satisfactory results, except for the period 1973-75.

We now turn to a consideration of the type of accumulation that underlies these cyclical movements, and of the development of the capital intensity of production dealt with in Part 1.

IX CAPITAL ACCUMULATION AND EMPLOYMENT

1. The relation between the accumulation of capital and employment is summarized by the theoretical notions of extensive capital accumulation (capital widening) and intensive capital accumulation (capital deepening). With extensive accumulation, the productive base is broadened with no change in techniques. Capital intensity and labour productivity remain constant, while employment expands to match the increase in capacity. With intensive accumulation, on the other hand, investment occurs in capital goods that increases the productivity of labour; the short-term effects of such investment may be detrimental to employment, since less labour is required to produce the same output (1). Intensive accumulation is usually accompanied by an increase in the capital intensity of production, since the installation of the new equipment means that each employee will be working with a larger volume of fixed and circulating capital.

In practice, of course, accumulation is never purely extensive or intensive because, for continuous growth, both types of investment must be present. If the outlook for demand is good, capital deepening may well be accompanied by an expansion of the labour force, as undertakings enlarge their productive base while adopting new, more productive techniques. It is thus important to identify the dominant feature.

For this purpose, the rate of growth of net fixed capital stock at constant prices has been broken down into: (i) the rate of growth of capital stock per employee, and (ii) the change in employment, by using a similar procedure

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(1) It is usually argued that the adverse effect on employment is short-lived, since the labour shed by the branch adopting the new technique will be absorbed by the investment goods sector, which is facing growing demand. This argument only holds while expansion is gathering momentum, however; in periods of slowdown or stagnation, the adverse effect is probably predominant.

to that followed in section IV (1). This shows the extent to which capital accumulation has increased the capital intensity of production (measured, for the sake of simplicity, as the fixed capital stock per employee), and how it has affected employment.

Figure 8 and Figure 9 give a graphic interpretation of this aspect of the question. They compare the index of net accumulation (capital at constant prices) with the index of capital intensity, the difference between the two corresponding to the change in employment. A positive difference (the index of accumulation is higher than the index of capital intensity) means an increase in employment; a negative difference means a decrease.

2. As Table 11 shows, capital accumulation in British industry has generally involved capital deepening. Over the period as a whole, the increase in the volume of capital per employee outpaced the increase in the total volume of fixed capital (2). In the intermediate goods and consumer goods sectors, this tendency was already apparent in the 1960s; in the investment goods sector, it emerged in the last decade.

---

(1) The starting point was thus the identity:

$$NKV = (NKV/L) \cdot L \qquad (XI)$$

where: NKV = net fixed capital (volume)

L = employees

which has been transformed in growth rates (lower case symbols) by estimating the long-run exponential trend:

$$nkv = (nkv/l) + l \qquad (XIa)$$

Net capital (NKV) was used rather than gross capital (GKV) because the broadening of the productive base (i.e. net investment) is properly reflected only in the former:

$$\Delta NKV = GFCF - D$$

where: GFCF = gross fixed capital formation

D = depreciation

Changes in gross capital, on the other hand, include the difference between retirements (RT) and depreciation, and this cannot be regarded as additional capacity:

$$\Delta GKV = GFCF - RT$$

(2) Figures in the last column of Table 11 indicate the nature of accumulation. A ratio of over 100 denotes intensive accumulation; the higher the figure, the more intensive the accumulation. A ratio of under 100 denotes extensive accumulation.

Table 11 Capital accumulation and employment
(annual average rate of change of the exponential trend)(1)

	Period	NKV	KL	L	(KL/NKV) %
Investment goods					
(a) excluding construction	1959-81	2.23	3.05	- 0.82	136.8
	1959-71	2.78	2.50	0.28	89.9
	1972-81	1.70	3.68	- 1.98	216.5
(b) including construction	1959-81	2.71	3.63	- 0.92	133.9
	1959-71	3.46	3.42	0.04	98.8
	1972-81	1.92	3.69	- 1.76	192.2
Intermediate goods	1959-81	3.49	4.85	- 1.36	139.0
	1959-71	4.86	5.50	- 0.64	113.2
	1972-81	2.16	3.99	- 1.83	184.7
Consumer goods	1959-81	3.20	5.07	- 1.87	158.4
	1959-71	4.06	5.22	- 1.16	128.6
	1972-81	1.59	4.58	- 2.99	288.1
Manufacturing	1959-81	3.04	4.15	- 1.11	136.5
	1959-71	3.84	3.94	- 0.10	102.6
	1972-81	1.88	4.20	- 2.32	223.4
Total industry	1959-81	3.28	4.56	- 1.28	139.0
	1959-71	4.44	4.91	- 0.47	110.6
	1972-81	2.03	4.07	- 2.04	200.5

NKV = net fixed capital stock at constant prices

KL = net fixed capital stock per employee at constant prices

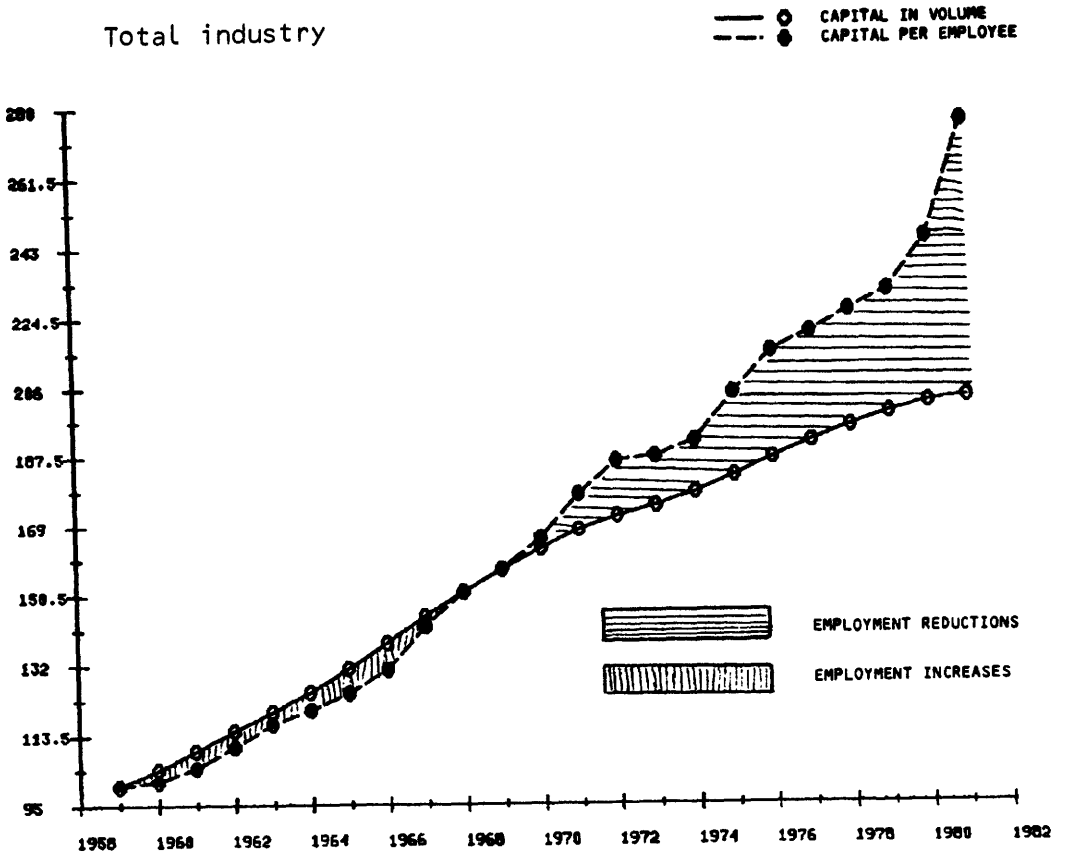
L = employees

(1) Parameters b(·100) of the function:

$x = a \cdot e^{bt}$, or: $\log x = \log a + bt$

where x is each of the above variables in turn, and t = time (1, 2, ..., 23).

FIG. 8 CAPITAL ACCUMULATION AND EMPLOYMENT (indices 1959=100)



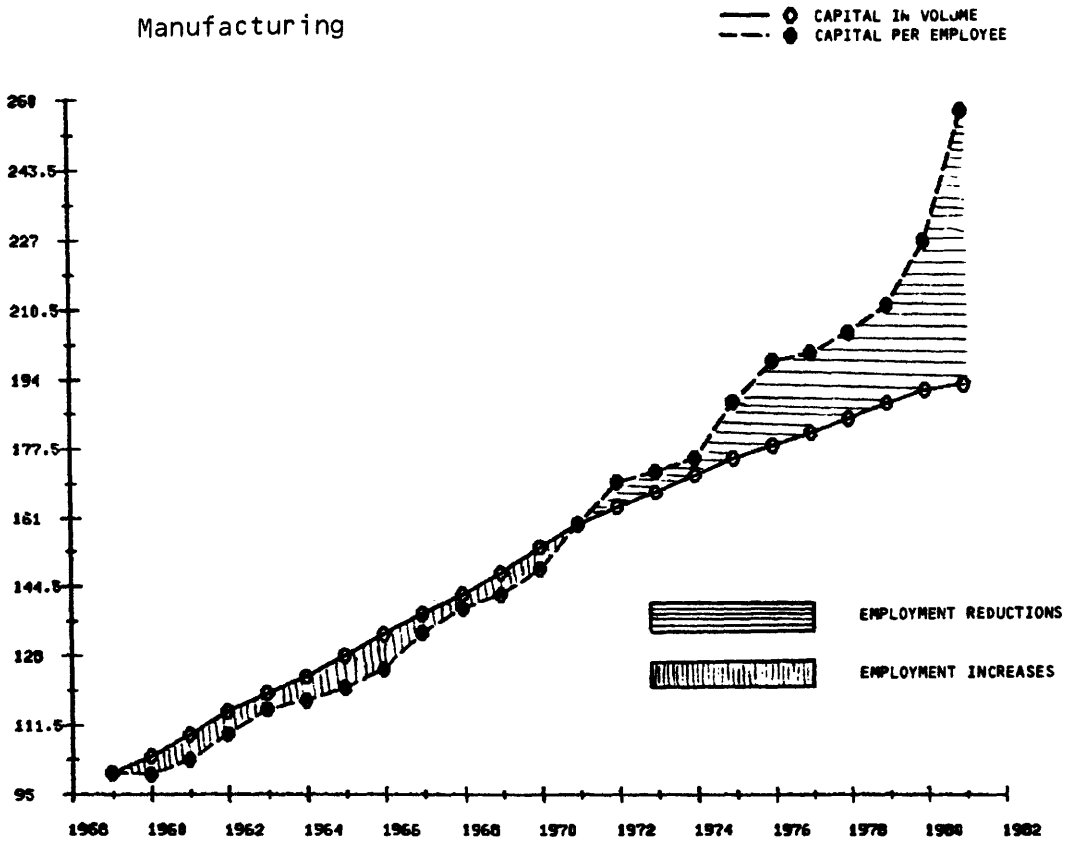
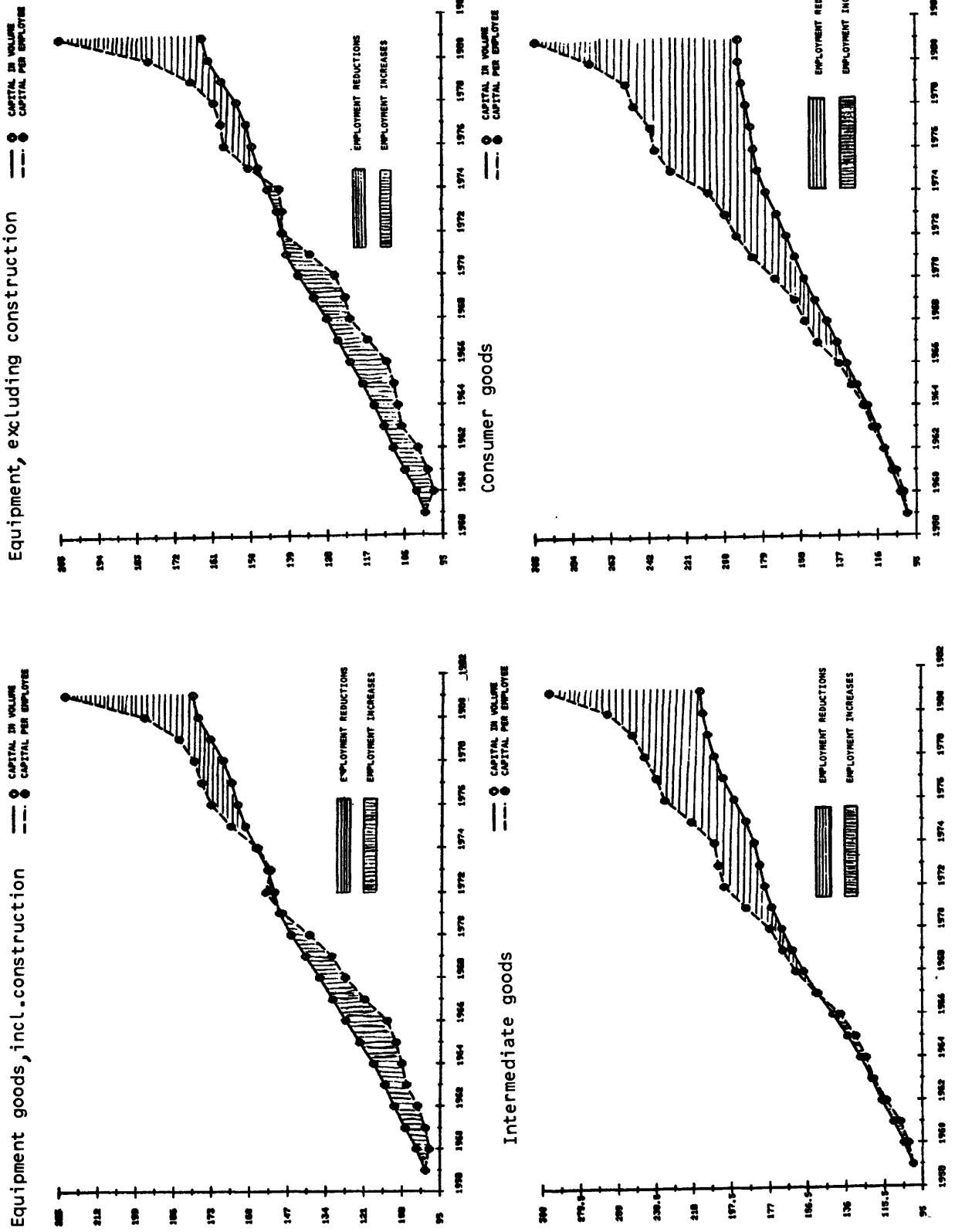


FIG. 9 CAPITAL ACCUMULATION AND EMPLOYMENT (indices 1959=100)



It is worth noting that as accumulation became more intensive in the 1970s (and particularly during the last cycle), net investment was declining. The modest amounts actually invested were thus devoted mainly to highly capital-intensive techniques, at the expense of employment. This development offset the positive difference obtained in the 1960s (except in sector III) between the index of accumulation and the index of capital intensity, and eventually led to substantial negative differences (see the shaded areas in Figures 8 and 9). Adverse effects on employment were least pronounced in the investment goods sector, where a positive difference was maintained until 1974. The difference was almost permanently negative (i.e. employment declined) in the consumer goods sector, where it reached considerable proportions by 1981.

The main conclusion to be drawn from these observations is that an all-out policy to promote investment does not solve the employment problem. Even if such a policy restored a GDP growth rate comparable to that of the 1960s, the expansion of employment would probably remain modest since, as already noted, the trend increase in the capital intensity of production seems to result from the very nature of the process of capital accumulation, where the aims are to secure profits as well as increase control of the production process. The policy in this area, whilst not pretending to subvert that long run underlying movement, could however obtain some favourable effects by a selective move, in which investment incentives are conditional upon the achievement of suitable job targets.

X CONCLUSIONS

1. Long-run profitability in British industry displays a clear downward trend. The cyclical fluctuations around the trend were fairly small in the 1960s, but widened considerably in the following decade. Construction, where profitability tended to rise until 1972, and energy products, where it has followed a rising trend since 1975, are exceptions to the general rule.

2. The two main determinants of the rate of profit (income distribution and the structure of accumulation)have both exerted downward pressure on profitability, but not to the same extent. Statistical analysis shows that in total industry and in the intermediate goods sector, the impact of capital accumulation (as measured by the rise in the indicator of the structure of accumulation) was much greater than that of income distribution. In the consumer goods sector, the two factors were equally important in the decline of profitability. Only in the investment goods sector excluding construction,was the decline in the rate of profit mainly attributable to increasing wages. In the investment goods sector including construction, the slight decline in profitability was due to neither the changing distribution of income nor the capital accumulation, but rather to the increasing relative importance of circulating capital.

The view that profitability declines because profits are squeezed by wages is not, therefore, confirmed by the figures. It would appear rather that capital accumulation in British industry has been excessive in relation to potential returns. It may be that generous incentives to investment have been one factor in this.

The inefficiency of accumulation is even more striking if the indicator of the structure of accumulation is broken down into its components. There is a persistent disparity between the investment effort (measured as the increase in the volume of capital per employee) and the resulting productivity gains, so that the volume of investment required to achieve a given productivity gain is steadily increasing.

3. Inflation has affected the rate of profit in two opposing ways. Abstracting from gains on the financial liabilities of undertakings, the major positive effect was stock appreciation, which was sufficiently substantial in the 1970s (as inflation gathered momentum) actually to influence the long-run trend. Over the period as a whole, profitability before providing for stock appreciation declined much less than profitability

without stock appreciation; indeed, its trend up to 1979 (i.e. ignoring the sharp fall in the rate of profit in 1980 and 1981) was almost not declining.

The negative effect of inflation was seen in the profit squeeze due to the changes in relative prices. In the long run, the selling prices of intermediate goods, consumer goods and even some investment goods (excluding construction) sectors rose more slowly than either the price of capital advanced in the corresponding sectors, or retail prices (1). This meant that potential profits of most industrial branches were transferred to specific investment goods branches (notably to construction), to commerce and to other services included in the cost-of-living basket. Industrial profit was therefore the weakest component of aggregate profit in the British economy, and the major threat facing it stemmed not from the increase in wages, but from the effects of inflation.

4. A comparison between profitability cycles and production cycles provides strong evidence for the "profits/investment" model. Cycle lengths correspond very closely, with profitability cycles generally anticipating production cycles by one year. This empirical study thus lends strength to the argument that the rate of profit plays a key role in determining the level of economic activity, even if it is not the only factor involved.

5. Throughout the period, capital accumulation in British industry was of an intensive form and increasingly so. The expansion of the volume of fixed capital led to an increase in the capital intensity of production, at the expense of employment. As investment slowed down in the 1970s, this feature of British investment became more pronounced. The main purpose of the modest investment carried out was to introduce highly capital-intensive techniques. In a low rate of return situation, this only helped to aggravate the unemployment problem. The efficiency of capital accumulation in terms of both productivity and employment has been falling.

Any policy to promote investment as a remedy for unemployment thus needs to be selective. In particular, government grants and other advantages should be strictly conditional on the achievement of job targets. General incentive structure appears to be inappropriate as a solution to the employment problem.

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(1) The comparison with retail prices is relevant even though wages and salaries are not automatically index-linked in the UK, because the rise in the cost of living is a determining factor in annual wage negotiation.

ANNEX I

SOURCES AND METHODS

1. The sources of the data used in this study were national accounts and input-output tables, supplemented by censuses of industrial production.

Figures for net capital stock and depreciation were supplied by the C.S.O. (1). As the figures for manufacturing industry are broken down into eleven sectors (instead of seventeen) two groups had to be further broken down to provide a consistent classification. They were:

(i) "other metals, engineering and other metal-using industries" (2), which mainly covers investment goods; two headings covering intermediate goods had to be distinguished: non-ferrous metals, and other metal products;

(ii) "leather, clothing and other manufacturing", which mainly covers consumer goods, but also includes a branch of the intermediate goods sector ("other manufacturing industries", order XIX).

The C.S.O. data were broken down using the branch structure estimated by A.G. Armstrong (1979).

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(1) The author is indebted to Mr. R.I. Armitage for these data, as well as for invaluable help with other data.

(2) This group covers the following orders and minimum list headings from the UK's Standard Industrial Classification: mechanical engineering (Order VII), instrument engineering (Order VIII), electrical engineering (Order IX), shipbuilding and marine engineering (Order X), non-ferrous metals (MLH 321-323) and metal goods not elsewhere specified (MLH 390-399).

2. Stock levels were calculated on the basis of the book value at the end of 1981, by subtracting annual changes. This case too raised a problem of breakdown, since figures for stocks in manufacturing are broken down into only six groups in the Blue Book.

Detailed figures of book values for the seventeen manufacturing branches for 1973-79 were supplied by the Department of Industry and Trade (1), as were figures for annual change in the six groups since 1959. Detailed figures for 1959-72 were obtained by extrapolation of the structure of each group resulting from production censuses. Since censuses refer only to 1958, 1963 and 1970, the group structure of the intervening years was estimated by linear interpolation.

3. Detailed figures for the value added at factor cost of the manufacturing branches also had to be estimated for certain years. Figures for total manufacturing are published every year in the Blue Book, but the breakdown into seventeen branches is not given for the 1960s, except where input-output tables are available, i.e. for 1963 and 1968. Figures for the rest of the decade were estimated by linear interpolation of the percentage share of each branch in the total. The breakdown of net output in production censuses was used for estimates for 1959-62.

Figures for total manufacturing and detailed figures by branch, where available, were taken from the Blue Book as follows:

- figures for 1959-66: from the 1970 edition;
- figures for 1967-68: from the 1974 edition;
- figures for 1969: from the 1980 edition;
- figures for 1970: from the 1981 edition;
- figures for 1971-81: from the 1982 edition.

4. The same editions of the Blue Book were used for figures on wages and salaries. Detailed figures are available since 1959, but they do not include employers' contributions, which are given separately as an aggregate for total manufacturing. This aggregate was broken down by applying,to each branch, the percentage of social contributions with respect to wages in total manufacturing.

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(1) The author thanks for this information Mr. D.T. Adams and Mr. O.P.A. Black.

5. Intermediate consumption was estimated on the basis of its share in output obtained from the input-output tables. Since these tables are published only for six years (1963, 1968, 1970, 1971, 1972 and 1974), the following procedures were used:

(i) for intervening years, by interpolation of known input-output coefficients;

(ii) for 1959-62, by extrapolating back the trend of 1963-68, with adjustments for certain branches when the findings were not plausible because changes over the whole period were too large;

(iii) for 1975-79, production was estimated (and,subsequently, intermediate consumption) by applying the rate of growth of gross output provided by production censuses to input-output data.

6. Intermediate consumption was deflated using the price index of materials and fuel purchased by manufacturing industry, base 1975. As the index based in 1975 is available only from 1974 onwards (in the Annual Abstract of Statistics), two problems arose:

(a) the problem of re-basing: earlier indices used base years 1970, 1963 and 1954;

(b) the problem of breakdown: indices for the years prior to 1974 are more highly aggregated.

For want of a better solution, the first problem was dealt with by applying the rates of change observed in the other indices to the index based in 1975. The second problem was solved by applying the index for total manufacturing (excluding food products) to the branches for which the Business Statistics Office does not publish a separate index.

On balance, the margin of error is probably small.

The rebasing problem also arose in connection with the retail price index; it was dealt with in the same way.

7. The sectoral classification for this study was based on the main use of the products concerned, with special attention being paid to international comparability.

The composition of the three sectors is as follows (UK Standard Industrial Classification Orders are given in brackets):

Sector I, investment goods: 1. mechanical engineering (VII); 2. instrument engineering (VIII); 3. electrical engineering (IX); 4. shipbuilding and marine engineering (X); 5. vehicles (XI); 6. construction (XX).

Sector II, intermediate goods: 1. mining and quarrying (II); 2. coal and petroleum products (IV); 3. chemicals and allied industries (V); 4. metal manufacture (VI); 5. metal goods not elsewhere specified (XII); 6. bricks, pottery, glass, cement etc. (XVI); 7. paper, printing and publishing (XVIII); 8. other manufacturing industries (XIX); 9. gas, electricity and water (XXI).

Sector III, consumer goods: 1. food, drink and tobacco (III); 2. textiles (XIII); 3. leather, leather goods and fur (XIV); 4. clothing and footwear (XV); 5. timber, furniture etc. (XVII).

A N N E X II

FINDINGS OF OTHER STUDIES ON PROFITABILITY IN THE UNITED KINGDOM

1. There is a highly-developed body of empirical research into profitability in the United Kingdom, based on complementary sources of statistics (national accounts and corporate balance-sheets), and taking account of government action to improve the rate of profits. Some of the studies, such as Clark and Williams (1978), cover very long periods. Regular surveys have been carried out by the Department of Industry since 1974 and the Bank of England since 1976.

All the literature confirms the finding of this study: the pre-tax rate of profit and the share of profits in value added follow a long-run declining trend. But it also shows that the rate and the share of profits after tax have developed quite differently, being remarkably stable until the end of the 1960s. While post-tax profitability fluctuated much more widely in the 1970s, it was often higher than pre-tax profitability.

2. a) The period covered by the most recent studies published by the Department of Industry and the Bank of England is 1960-81. The annual analyses they contain cover industrial and commercial companies as a whole and total manufacturing; they have also been supplemented by a sectoral breakdown of manufacturing (1). The sources of the data are national accounts and a sample of balance sheets of large companies.

Fixed capital and depreciation are recorded in the balance sheets either at historic cost or at book values, which take account of periodic revaluations of company assets. In the national accounts, on the other hand, fixed capital and depreciation are given at replacement costs.

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(1) See Walker (1974), Department of Industry (1979) and Williams (1979), where manufacturing industry is broken down into six sectors. In Williams (1981), manufacturing industry is broken down into seventeen branches, and figures are also given for construction and four services sectors: transport and communications; wholesale trade; retail trade; miscellaneous services.

The C.S.O. also calculates fixed capital and depreciation at historic costs, to ensure comparability with balance-sheet data. The range of rates of profit that can be claculated on the basis of these different sets of figures is quite large (1).

On the basis of national accounts data, we have:

(i) Gross and net profitability on capital advanced (fixed capital plus stocks) at historic costs: fixed capital concerns reproducible assets (plant and machinery, vehicles, and buildings) but does not include land; its value is estimated using the permanent inventory method. Stocks are estimated at book values, which correspond to historic costs. Profits are made up of the operating surplus, including stock appreciation. The gross rate of profit is obtained by dividing the gross operating surplus by gross capital;

(ii) Actual gross and net profitability at replacement costs: this involves the usual national accounts definition of profits net of stock appreciation (2).

The rate of profit obtained from balance-sheet data is based on the book values of trading assets. Capital comprises fixed capital, intangible assets and all other net assets (i.e. total assets minus the corresponding liabilities, in particular loans and bank credits). On the basis of balance-sheet data, the Monopolies and Mergers Commission calculates the value of total assets at historic and at replacement costs.

The other indicator used in work by the Department of Industry and the Bank of England is shareholders' interest; capital in this case is mainly shares and reserves net of intangible assets.

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(1) For a detailed description, see Walker (1974).

(2) In the UK terminology, the term "real" is used (somewhat misleadingly) to qualify profits net of stock appreciation.

The Department of Industry publishes pre-tax rates of profits (1), while the Bank of England publishes both pre-tax rates and estimated post-tax rates (2).

b) The findings of these studies usefully supplement the information in this paper. The extra details mainly concern post-tax profitability and profitability based on historic costs.

Post-tax profitability in the 1960s showed cyclical fluctuations similar to those observed for pre-tax profitability around a long-run trend that was, however, quite stable. Over more recent years, the fluctuations have widened, and post-tax profitability has even exceeded pre-tax profitability.

Profitability calculated on the basis of historic costs shows no declining long-run trend; in fact, such profitability actually rose quite considerably in the 1970s.

The following detailed remarks can be made

b.1) Manufacturing

b.1.1) national accounts approach (pre-tax)

- the long-run trend of the net rate of profit excluding stock appreciation on capital advanced has declined; cycles were identical to those identified in this paper for manufacturing (DIT (1982), p.86);

- the gross rate of profit (pre-tax, excluding stock appreciation) showed the same cycles as the net rate, but the long-run decline was less pronounced: the index for the gross rate (1960 = 100) stood at 32.1 in 1981, compared with 15.9 for the net rate. The gross rate was lower than the net rate until 1973 (except in 1970, where they were identical); it was higher than the net rate from 1974 to 1981. By 1981, the gross rate was 3.6%, while the net rate was 2.1% (DIT (1982), p.86);

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(1) Walker (1974) also gives shareholders' interest for large manufacturing companies from 1955 to 1972 (pp. 41 and 44).

(2) The post-tax rate of profit is calculated in two different ways, depending on how taxes and investment grants are treated. We thus have:

(i) backward-looking profitability, which is computed from the allowances in force when the asset was installed. When tax provisions enable companies to deduct new investment from taxable profits, the capital advanced is lower, since a part of it is financed by the government. The rate of profit is thus calculated after reducing capital by this amount;

(ii) forward-looking profitability, a proxy for the expected rate of return on new capital, which is based on the current tax structure and investment allowances. (See Flemming, Pryce and Ingram (1976), pp. 39-41.)

- the net rate of profit including stock appreciation is identical to that found in this paper (Fig.3) (DIT (1979), p.631);

- the net rate of profit based on historic costs, including stock appreciation, does not show the same long-run decline. It developed in two stages: from 1960 to 1967, it fell from 18.4% to 12.6%; from 1968 to 1978 (the last year covered by the DIT study), it rose again to 14.9% (having reached 16.3% in 1977) (DIT (1979) p.631).

b.1.2) Balance-sheet approach (pre-tax)

- the long-run trend of the net pre-tax rate of profit, excluding stock appreciation, on the basis of assets at replacement costs declined exactly in line with the corresponding trend established using the data of national accounts, although cyclical fluctuations were more pronounced. The same is true of profitability including stock appreciation (DIT (1979) p.632);

- the net rate of profit on the basis of historic costs developed in the same way as the rate based on national accounts data, the main difference being that the balance-sheet approach gives a much more pronounced rise in the 1970s, so that the rate for the final year of the period is higher than the 1960 rate (DIT (1979) p.632).

b.2) Non-financial enterprises (1)

b.2.1) National accounts approach (pre-tax)

- gross and net profitability excluding North Sea gas and oil followed the same trend as profitability in manufacturing industry (DIT (1982) pp. 85-86);

- gross and net profitability including North Sea gas and oil was distinguished by a much less pronounced decline in the last three years of the period (DIT (1982) pp. 85-86);

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(1) Work by the Bank of England covers all industrial and commercial enterprises, except those involved in North Sea oil exploitation.

- the share of net profits in national income over a very long period (from 1920 to 1977; Clark and Williams, 1978) (1) shows no declining trend until the end of the 1960s, after which a sharp drop occurred.

b.2.2) Balance-sheet approach (pre-tax and post-tax)

- net pre-tax profitability, excluding stock appreciation, on the basis of replacement costs developed in parallel to the same variable in manufacturing industry (Bank of England (1982) p.243);

- net backward-looking post-tax profitability, excluding stock appreciation, on the basis of replacement costs showed quite a different trend (Flemming et alii (1976) p.42; Bank of England (1982) p.243; see Fig.10 for a representation of the findings of those two studies). The long-run trend was, indeed, declining, but much more slowly; until 1974 profitability fluctuated around a flat tendency. Since 1974, post-tax profitability has been as high as pre-tax profitability, or even higher, except in 1975. This demonstrates the importance of Government action to support profits, which began to take effect as early as 1971: from 1959 to 1970, the gap between pre-tax and post-tax rates of profits was narrowing slightly; after 1971 it became very small (see Fig. 10);

- pre-tax profitability on the basis of historic costs, including stock appreciation, showed no long-run decline. There were three distinct sub-periods: the rate declined from 1960 to 1967, rose rapidly from 1968 to 1978, and fell so fast from 1979 to 1981 (expecially in 1980) that it reached a minimum.

3. The long-run decline in the rate of profit is also found by Barou (1976 and 1978) and by King and Mairesse (1978).

Barou's studies cover the period from 1949 to 1974, and relate to all non-financial undertakings and to industry, broken down into five sectors (investment goods; intermediate goods; consumer goods; construction; energy, transport and communications). Profitability is calculated on the basis of national accounts for both gross and net profits on capital advanced (fixed

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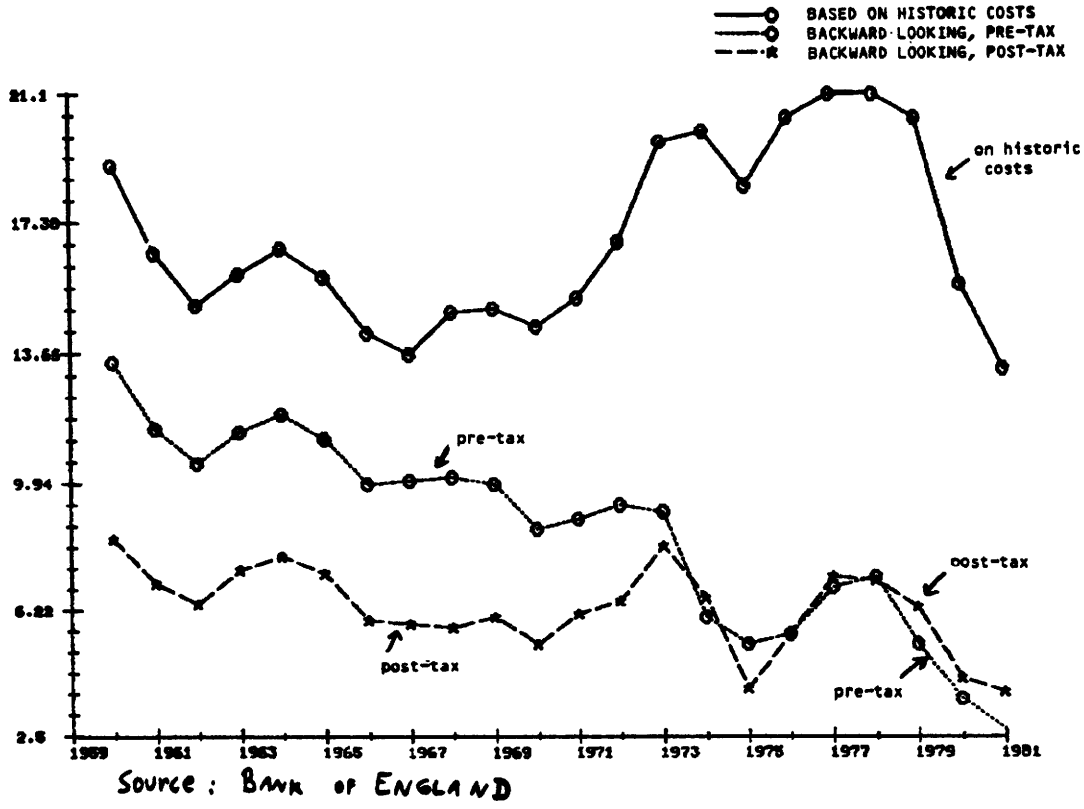
(1) Net profits are calculated using depreciation at both historic and replacement costs.

Fig. 10 : Net rates of profit on assets
Industrial and commercial companies



capital plus stocks). In the first study, which covers all undertakings and total manufacturing, the rate of profit is broken down into: (i) the share of profits in value added; (ii) the productivity of capital; (iii) the relative price of value added with respect to the price of capital (1). In the second study, where industry is disaggregated, the formula for the rate of profits is very similar to that adopted in this work (2).

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(1) $p = \frac{S}{K} = \frac{S}{VA} \cdot \frac{VAVO}{KVO} \cdot \frac{PVA}{PK}$

where: S = operating surplus
K = fixed capital
VA = value added
PVA = value added prices
PK = prices of capital
VO = volume

(2) Barou uses the formula:

$$p = \frac{S}{K} = \frac{S/W}{K/W}$$

The decline in the share of profits is apparent only from 1960 onwards in total manufacturing, and only from 1968 onwards in the enterprises sector as a whole (Barou 1976 p.13). Relative prices of value added in manufacturing remain fairly stable until 1961, after which they begin to deteriorate (id. p.12).

The productivity of capital in manufacturing deteriorates steadily, with the 1974 level being 18% down on the 1950 level; in the enterprises sector, the deterioration does not begin until 1964. This inefficiency of accumulation is the result, in particular, of: 1) the fact that the rural exodus had already led to some productivity gains in the UK before the war; 2) the weakness of investment (out-of-date plant and machinery), its unsuitable regional and sectoral distribution and the inefficient way in which it was used (in unsuitable buildings and with unsuitably qualified labour); 3) working conditions: restrictive practices and restraints on the extension of shift work (Barou (1976), pp. 11-12).

King and Mairesse (1978) cover manufacturing (except food products and tobacco, and metal manufacturing) from 1956 to 1975, on the basis of national accounts. The sectoral breakdown of industry into investment goods, intermediate goods and consumer goods is similar to that in this paper. The net rate of profit on capital is calculated before and after tax.

The authors carry out several regressions. First they relate rates of profits to time, to establish whether there is a long-run declining trend. To this independent variable is added successively:

(a) the rate of capacity utilization;

(b) a dummy variable with a value of 1 from 1969 to 1975, so as to allow for the abnormal fall of profitability during that period. This fall was apparently due to a slow change in methods of price-fixing based on historic cost when inflation started to increase in the late 1960s. By the time the principle of "inflation accounting" had been recognized, price control had been introduced.

The parameters of the regressions are statistically significant for the time and the dummy variables, but usually not significant for the capacity utilization rate.

4. Glyn and Sutcliffe (1972) calculate the share of pre-tax profits in the net value added of all undertakings from 1950 to 1969, and the rate of profits on net corporate assets, so as to provide empirical evidence for their interpretation of the crisis in the UK economy. They argue that the crisis is due to a profit squeeze resulting from wage increases after 1965, and from stronger international competition, which prevented undertakings from passing on prices the rise in their costs.

King (1975) criticizes Glyn and Sutcliffe's approach by stressing the importance of taxation when considering the share of profits: from 1950 to 1973, the share of post-tax profits in manufacturing as a whole hardly showed a declining trend (1). Indeed, if stock appreciation is taken into account, the profit share until 1970 (King (1975), pp. 42 and 40). These stable over the long period. Ignoring stock appreciation, King does not find a decline in the profit share until 1970 (King (1975), pp. 42 and 40). These findings are compatible with those of the Bank of England (1982) for the post-tax profit rate (see Fig.10).

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(1) The author excludes metal manufacturing to eliminate the effects of nationalizing the steel industry.

ANNEX III

Rate of profit and its components

INVESTMENT GOODS, EXCL. CONSTRUCTION					CONSTRUCTION					INVESTMENT GOODS, INCL. CONSTRUCTION			
YEARS	ID	SA	R	P	YEARS	ID	SA	R	P	ID	SA	R	P
1959	26.6	9.2	4.2	10.9	1959	24.0	6.7	10.5	32.8	25.7	8.7	5.2	13.7
1960	27.9	8.8	4.1	11.8	1960	25.6	7.1	11.5	36.3	27.2	8.5	5.2	14.9
1961	22.1	8.3	3.9	9.3	1961	27.5	7.8	12.8	40.1	23.9	8.1	5.0	13.1
1962	20.0	8.3	3.8	8.2	1962	28.3	8.3	13.9	42.2	22.9	8.3	5.1	12.5
1963	23.5	8.7	3.9	9.4	1963	31.5	8.6	13.7	45.0	26.3	8.6	5.1	14.0
1964	24.9	8.5	3.9	10.2	1964	29.4	8.6	14.2	43.6	26.6	8.4	5.2	14.7
1965	23.3	7.9	3.7	9.6	1965	28.8	9.0	14.1	40.9	25.2	7.9	4.9	13.9
1966	20.2	7.5	3.5	8.3	1966	27.7	9.3	14.0	37.6	22.9	7.6	4.7	12.4
1967	21.8	7.6	3.4	8.6	1967	34.7	10.3	14.0	43.2	26.3	7.8	4.6	13.7
1968	22.9	7.8	3.5	9.2	1968	38.0	11.0	14.2	45.0	28.1	8.0	4.7	14.6
1969	20.2	7.9	3.6	8.3	1969	42.5	11.7	13.9	46.6	27.5	8.2	4.8	14.2
1970	14.2	7.8	3.7	5.9	1970	44.5	12.4	14.7	48.9	24.0	8.2	4.8	12.5
1971	16.1	7.8	3.6	6.5	1971	49.3	12.7	14.6	52.2	26.8	8.4	4.8	13.7
1972	18.6	8.0	3.5	7.3	1972	62.7	11.7	13.8	68.4	33.9	8.3	4.7	17.0
1973	17.2	8.3	3.6	6.7	1973	63.8	10.6	12.4	68.6	34.1	8.7	4.9	17.2
1974	6.4	7.6	3.3	2.5	1974	57.3	9.8	10.0	53.3	23.9	8.2	4.4	11.5
1975	1.8	7.1	3.2	.7	1975	50.0	11.4	11.6	46.8	17.9	7.8	4.3	8.7
1976	5.0	7.1	3.1	1.9	1976	51.1	14.7	14.3	46.6	20.1	7.9	4.2	9.5
1977	13.9	7.2	3.0	5.1	1977	52.1	17.6	15.6	43.8	25.9	8.1	4.1	11.6
1978	16.3	6.9	2.9	5.9	1978	55.3	19.5	18.0	48.6	28.9	7.9	4.0	13.0
1979	10.8	7.3	2.9	3.8	1979	64.5	20.3	18.2	55.1	28.1	8.3	4.1	12.2
1980	6.2	7.5	2.9	2.1	1980	58.1	19.0	17.1	49.8	23.3	8.5	4.1	10.0
1981	5.0	7.7	2.8	1.6	1981	60.6	20.4	17.4	49.1	23.5	8.8	3.9	9.4

ID = (NET) INCOME DISTRIBUTION RATIO
SA = INDICATOR OF THE STRUCTURE OF ACCUMULATION
R = RATE OF TURNOVER OF CIRCULATING CAPITAL
P = NET RATE OF PROFIT ON CAPITAL ADVANCED

INTERMEDIATE GOODS					ENERGY PRODUCTS				CONSUMER GOODS				
YEARS	ID	SA	R	P	ID	SA	R	P	YEARS	ID	SA	R	P
1959	34.0	15.1	3.4	7.2	10.4	18.7	2.9	1.5	1959	44.7	10.7	3.8	14.5
1960	35.3	15.5	3.5	7.5	13.7	20.1	3.0	1.9	1960	49.3	11.0	3.9	16.1
1961	32.2	15.7	3.5	6.8	15.1	21.6	3.1	2.1	1961	43.8	11.0	3.9	14.3
1962	32.1	16.6	3.6	6.5	21.1	23.1	3.3	2.8	1962	40.3	11.4	4.0	12.9
1963	34.4	18.0	3.8	6.9	25.0	25.7	3.5	3.3	1963	42.1	11.9	4.0	13.2
1964	33.6	18.9	4.0	6.8	26.4	29.0	3.8	3.3	1964	44.1	12.3	4.2	13.9
1965	30.1	19.4	4.1	6.1	22.8	31.6	3.9	2.8	1965	41.8	12.6	4.3	13.4
1966	26.1	20.1	4.2	5.2	21.2	34.5	4.0	2.4	1966	34.5	12.5	4.4	11.2
1967	29.9	21.8	4.2	5.5	24.1	36.5	3.9	2.5	1967	38.1	13.3	4.4	11.6
1968	31.7	23.1	4.3	5.6	32.2	40.5	3.9	3.0	1968	36.6	13.6	4.5	11.3
1969	30.9	24.4	4.5	5.5	27.3	47.4	4.3	2.4	1969	35.8	13.9	4.6	11.0
1970	25.8	25.5	4.7	4.6	20.0	56.8	4.7	1.6	1970	34.3	14.7	4.7	10.4
1971	25.8	26.0	4.6	4.4	21.8	59.0	4.8	1.7	1971	34.9	15.3	4.9	10.5
1972	27.6	27.5	4.8	4.6	19.8	57.4	4.8	1.6	1972	36.9	16.1	5.0	10.7
1973	29.9	32.9	5.4	4.8	22.1	75.2	5.8	1.7	1973	38.9	17.7	5.4	11.2
1974	15.0	33.4	5.6	2.4	-1.7	78.8	6.6	-.1	1974	25.7	17.7	5.0	6.9
1975	10.9	29.0	4.9	1.8	4.1	61.0	5.4	.4	1975	22.6	17.2	5.0	6.2
1976	18.2	31.4	5.0	2.8	25.3	66.0	5.3	2.0	1976	23.0	18.4	5.2	6.2
1977	36.0	32.2	4.9	5.3	70.0	76.2	5.7	5.2	1977	31.4	19.2	5.1	8.0
1978	33.0	32.1	4.9	4.9	59.0	77.1	6.0	4.6	1978	36.8	18.6	4.8	9.0
1979	36.9	35.0	5.3	5.4	105.4	87.9	7.0	8.3	1979	24.1	19.4	5.0	5.9
1980	45.2	36.7	5.4	6.5	132.1	85.1	7.1	11.0	1980	20.7	20.6	5.1	4.9
1981	52.2	38.8	5.5	7.3	160.6	84.6	7.2	13.4	1981	13.8	21.1	5.1	3.2

ID = (NET) INCOME DISTRIBUTION RATIO
SA = INDICATOR OF THE STRUCTURE OF ACCUMULATION
R = RATE OF TURNOVER OF CIRCULATING CAPITAL
P = NET RATE OF PROFIT ON CAPITAL ADVANCED

MANUFACTURING					TOTAL INDUSTRY				
YEARS	ID	SA	R	P	YEARS	ID	SA	R	P
1959	38.1	10.7	3.9	12.5	1959	32.4	11.8	4.0	10.1
1960	39.5	10.7	3.9	13.3	1960	34.3	12.0	4.1	10.9
1961	33.8	10.4	3.8	11.3	1961	30.7	11.9	4.1	9.7
1962	31.1	10.8	3.8	10.1	1962	29.5	12.4	4.1	9.1
1963	33.5	11.4	3.9	10.6	1963	32.2	13.1	4.3	9.7
1964	33.9	11.5	4.1	11.1	1964	32.3	13.4	4.4	10.0
1965	31.2	11.3	4.1	10.3	1965	29.9	13.3	4.5	9.3
1966	26.5	11.1	4.0	8.8	1966	26.2	13.4	4.4	8.0
1967	29.5	11.6	3.9	9.2	1967	29.7	14.2	4.4	8.5
1968	29.3	11.9	4.1	9.3	1968	30.9	14.8	4.5	8.8
1969	28.2	12.1	4.2	9.1	1969	30.2	15.4	4.6	8.5
1970	23.8	12.3	4.3	7.7	1970	26.5	15.8	4.7	7.5
1971	24.5	12.5	4.3	7.7	1971	27.9	16.2	4.7	7.7
1972	27.2	13.3	4.3	8.2	1972	32.1	16.8	4.8	8.6
1973	27.9	14.7	4.6	8.3	1973	33.5	18.6	5.2	8.9
1974	16.1	14.2	4.4	4.7	1974	20.9	18.3	5.0	5.4
1975	10.8	13.1	4.1	3.2	1975	16.1	17.0	4.7	4.2
1976	13.1	13.8	4.2	3.8	1976	19.9	18.1	4.8	5.0
1977	21.9	13.9	4.1	6.0	1977	30.7	18.6	4.6	7.2
1978	23.7	13.5	3.9	6.4	1978	31.8	18.2	4.5	7.5
1979	14.2	14.2	4.0	3.7	1979	30.8	19.5	4.7	7.1
1980	10.7	14.8	4.0	2.7	1980	31.3	20.3	4.8	7.1
1981	6.6	15.4	4.0	1.6	1981	33.3	21.3	4.8	7.1

ID = (NET) INCOME DISTRIBUTION RATIO
SA = INDICATOR OF THE STRUCTURE OF ACCUMULATION
R = RATE OF TURNOVER OF CIRCULATING CAPITAL
P = NET RATE OF PROFIT ON CAPITAL ADVANCED

References

AARONOVITCH, S., SMITH, R. et autres (1981), The Political Economy of British Capitalism, McGraw-Hill, London.

ADAMS, D., GILLESPIE, S., GREEN, M., WORTMANN, H. (1982), United Kingdom - Medium-Term Economic Trends and Problems, "Economic Papers", N. 7/C.E.C., DG II.

ALBERS, D., GOLDSCHMIDT, W., OEHLKE, P. (1976), Lotte sociali in Europa 1968-1974. Francia, Gran Bretagna, Repubblica Federale tedesca, Editori Riuniti, Roma.

ARMSTRONG, A.G. (1979), Capital Stock in UK Manufacturing Industry: Disaggregated Estimates 1947-76, in K.D. Patterson et K. Schott (ed.), The Measurement of Capital, MacMillan, London 1979 p. 133-158.

BANK OF ENGLAND (1982), Profitability and Company Finance, "Bank of England Quarterly Bulletin", N.2, p. 243-250.

BAROU, Y. (1976), L'économie britannique en crise: 1949-1974, "Statistiques et Etudes Financières", série orange, nº 24, p. 3-31.

BAROU, Y. (1978), Une fresque sectorielle de l'économie britannique, "Statistiques et Etudes Financières", série orange, nº 33, p. 3-23.

BUSINESS STATISTICS OFFICE (1978), Historical Record of the Census of Production 1907 to 1970, HMSO.

BUSINESS STATISTICS OFFICE (diverses années), Report on the Census of Production, Business Monitor PA 1002 et PA 1000, HMSO.

CELLA, G.P. (1979), Il movimento degli scioperi in Gran Bretagna (1900-1971), in: CELLA, G.P. (sous la direction de), Il movimento degli scioperi nel XX secolo, Il Mulino.

CENTRAL STATISTICAL OFFICE (C.S.O.) (diverses années), National Income and Expenditure ("Blue Book"), HMSO.

C.S.O. (diverses années), Annual Abstract of Statistics, HMSO.

C.S.O. (diverses années), Input-output tables for the United Kingdom 1963, 1968 (Studies in Official Statistics n. 16 et 22), 1970, 1971, 1972 et 1974 (Business Monitor PA1004)

CLARK, T.A., WILLIAMS, N.P. (1978), Measures of Real Profitability, "Bank of England Quarterly Bulletin" N. 4, p. 513-522.

DEPARTMENTS OF INDUSTRY AND TRADE (D.I.T.) (1979), Companies' rate of return on capital employed 1960 to 1978, "British Business", 28 September, p. 631-634.

DEPARTMENTS OF INDUSTRY AND TRADE (D.I.T.) (1982), Companies' rate of return on capital employed: 1960 to 1981, "British Business", 17-23 September, p. 85-86.

FLEMMING, J.S., PRICE, L.D.D., BYERS, S.A. (1976), The Cost of Capital, Finance and Investment, "Bank of England Quarterly Bulletin" N.2, p. 193-205.

FLEMMING, J.S., PRICE, L.D.D., INGRAM, D.H.A. (1976), Trends in Company Profitability, "Bank of England Quarterly Bulletin" N.1, p. 36-52.

GLYN, A.J., SUTCLIFFE, R.B. (1972), British Capitalism, Workers and the Profit Squeeze, Penguin, London.

GLYN, A., HARRISON, J. (1980), The British Economic Disaster, Pluto Press, London.

GRIFFIN, T. (1976), The Stock of Fixed Assets in the United Kingdom: How to make best use of the statistics, "Economic Trends" N. 276, p. 130-143.

HILL, T.P. (1979), Bénéfices et taux de rendement, OCDE, Paris.

HINTON, J. (1983), Labour and Socialism. A History of the British Labour Movement, 1867-1974, Wheatsheaf Books, Brighton.

HODGSON, G. (1982), Theoretical and policy implications of variable productivity, "Cambridge Journal of Economics" n. 3, p. 213-226.

KILPATRICK, A., LAWSON, T. (1980), On the Nature of Industrial Decline in the U.K., "Cambridge Journal of Economics" vol. 4, N. 1, p. 85-102.

KING, M.A. (1975), The United Kingdom profit crisis: myth or reality?, "The Economic Journal", N. 337, mars, p. 33-54.

KING, M., MAIRESSE, J. (1978), Profitability in Britain and France 1956-75: A Comparative Study, rapport présenté à l'"International Seminar in Macro-economics", Paris, septembre, texte polycopié de 49 pages.

LAPIERRE-DONZEL, C. (1980), Le partage des revenus, la formation du profit: comparaison entre les cinq grandes économies, "Statistiques et Etudes Financières", série orange, n° 44, p. 37-49.

LEVY-GARBOUA, V. et WEYMULLER, B. (1981), Macroéconomie contemporaine, Economica, Paris.

MATTHEWS, R.C.O., FEINSTEIN, C.H., ODLING-SMEE, J.C. (1982), British Economic Growth 1856-1973, Stanford University Press, Stanford.

MAURICE, R. (sous la direction de) (1968), National Accounts Statistics. Sources and Methods, C.S.O., HMSO, London.

MORLEY, J.R. (1979), Profit, Relative Prices and Unemployment, "The Economic Journal", N. 355, p. 582-600.

PASINETTI, L.L. (1977) Lectures on the theory of production, McMillan, London

SACHS, J.D. (1979), Wages, Profits, and Macroeconomic Adjustment: A Comparative Study, Brookings Papers on Economic Activity, N.2, p. 269-319.

SARGENT, J.R. (1968), Recent Growth Experience in the Economy of the United Kingdom, "The Economic Journal", N. 309, p. 19-42.

SARGENT, J.R. (1982), Capital Accumulation and Productivity Growth, in: R.C.O. MATTHEWS (sous la direction de), Slower Growth in the Western World, Heinemann, London, p. 65-76.

STONE, R., ARMSTRONG, A. (sous la direction de) (1974), Structural Change in the British Economy 1948-1968, University of Cambridge, Department of Applied Economics.

TRAVAGLINI, G. (1981), Accumulazione del capitale, occupazione ed inflazione nel Regno Unito dal 1960 al 1977: analisi teorica e ricerca empirica, "Bancaria" n. 12, p. 1257-1273.

WALKER, J.L. (1974), Estimating companies' rate of return on capital employed, "Economic Trends" n. 253, Novembre p. 30-46.

WHITTINGTON, G. (1980), The Profitability and Size of United Kingdom Companies, 1960-1974, "Journal of Industrial Economics" N.4, p. 335-352.

WILLIAMS, N.P. (1979), The Profitability of UK Industrial Secotrs, "Bank of England Quarterly Bulletin" N. 4, p. 394-401.

WILLIAMS, N.P. (1981), Influences on the Profitability of Twenty-two Industrial Sectors, "Bank of England", Discussion paper N. 15, texte polycopié de 80 pages.

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