

## REPORTS AND INQUIRIES

### Recent Productivity Trends in Western European Manufacturing Industry

*Two years ago the International Labour Review published an article analysing changes in productivity in European manufacturing during the Second World War and the post-war period.<sup>1</sup> The present article brings that analysis up to date and presents evidence of continuing gains in productivity.*

Perhaps nothing is more indicative of the general health of the post-war European economy than the continued upward movement of productivity in recent years. The gains characteristic of the last decade have opened up new vistas for economic and social progress and have had many significant repercussions on labour and industrial policy and on levels of living in Western Europe. Productivity concepts have played a prominent part in discussions and negotiations relating to wages and labour income. Today, the trend of productivity is watched with special care because of current preoccupations with technological change and with closer economic and social co-operation among the Western European countries.

It is very difficult to measure productivity, despite its acknowledged significance for economic progress and the raising of living standards. Methods and statistics for productivity measurement are more highly developed in Western Europe than in most of the world, but even so they are very imperfect. Much reliance has to be placed on crude comparisons between production and employment. Certain other useful data, such as those relating to hours of work, are not generally available and thus cannot be taken adequately into account. The difficulties inherent in productivity measurement have been explained in an earlier article on productivity in Western European countries<sup>2</sup> and need not be repeated here. It is necessary to emphasise once again, however, the limitations which these difficulties impose on the analysis and comparison of productivity data.

As in the earlier article, productivity is here taken to mean the ratio between the volume of output as measured by production indices and the corresponding volume of labour input as measured by employment

---

<sup>1</sup> "Productivity Trends in European Manufacturing", Vol. LXXI, No. 5, May 1955, pp. 532-541.

<sup>2</sup> "Productivity Trends in European Manufacturing", op. cit. See also I.L.O.: *Methods of Labour Productivity Statistics*, Studies and Reports, New Series, No. 18 (Geneva, 1951).

indices. Such indices are available with respect to manufacturing as a whole for most countries of Western Europe. But for limited sectors of manufacturing, such as individual industries, it is much more difficult to obtain indices of production and of employment which may safely be compared. Thus this article traces the evolution of productivity primarily with respect to the manufacturing sector as a whole and devotes less attention to more limited sectors. Even so, the estimates derived should be regarded only as rough approximations.

As emphasised in the previous article, however, even crude estimates of this nature may often provide useful and indeed indispensable guidance for economic and social planning and policy-making. This article undertakes, therefore, to bring up to date the material relating to the recent trend of productivity in Western European manufacturing industries in order to provide a picture of the evolution which has taken place and an indication of the present situation. This general picture has deep significance for all those concerned with European development.

### THE TREND OF PRODUCTIVITY

The over-all picture that emerges from a comparison of trends in manufacturing production and employment in Western Europe is one of rising output per man throughout the post-war period and of substantial increases in productivity in recent years. By 1956 output per man was more than one-third higher than in 1938. Manufacturing production was some four-fifths higher than pre-war while manufacturing employment was only about a third higher. This suggests that somewhat less than half the increase in output derives from increased employment and somewhat more than half from increased productivity. Before taking up the question of short-term movements in productivity it is of interest to consider the factors responsible for this considerable long-term increase.

One factor has been the fuller utilisation of employed labour. Actual weekly hours of work (as distinguished from "normal" or "legal" hours) were probably greater in 1956, a year of virtually full employment throughout Western Europe, than in the pre-war period or in the years immediately following the war. More important, a substantial amount of underemployed labour—in the form of persons on the payroll but not actually needed to maintain the level of production—had been absorbed by the increased tempo of industrial activity. With production a far more flexible factor than employment, rising output is almost invariably accompanied by increased output per worker, though the influence of this factor may be greater in the short run than over long periods.

A second important factor has been the volume of capital investment, which in recent years has more than overcome the destruction and deterioration of the war period. Government and business investment led to more and cheaper energy, improved transportation, modern factories and efficient equipment, increasingly automatic.

Better management and improved organisation of production have also played a part. Increased managerial efficiency has received much attention since the war. A new generation of managers, many of whom have profited from specialised training, is taking over responsibility for the organisation and direction of production.

Finally the increasing importance of vigorous and dynamic lines of production such as the engineering, electrical and chemical industries has itself tended to raise the average level of productivity, quite inde-

pently of the factors operating in each individual line of production.

These long-term factors have had a persistent and continuous influence on recent productivity trends in Western Europe. In addition, a variety of short-term factors have had an appreciable bearing on the general situation and a clearly defined impact on the year-to-year changes in the situation.

### *The War Impact and the Recovery Period*

The earlier article already cited indicated that productivity in most Western European countries declined appreciably during the war. The available statistics do not reveal the year-to-year movements of production and employment, but it appears likely that output per man continued to decline throughout the war and reached a low point some time in 1944 or early 1945. Even in 1946, after some recovery had taken place, output per man was still about 12 per cent. below the pre-war level. In the recovery period of 1946-50, however, the picture changed sharply. Both production and employment in most European countries rose appreciably, but production rose faster than employment in every country for which data are available.<sup>1</sup> It was a period of rapid increase of productivity, making up in large part for wartime losses. By 1948 or 1949 the pre-war level of output per man in manufacturing industries in Western Europe as a whole had been attained and the new stage of growth, discussed briefly in this article, began.

### *The Tendency in Recent Years : 1950-56*

Table I and chart 1 show the composite picture of recent changes in production, employment and output per man in manufacturing industry for 13 countries of Western Europe for which comparable

TABLE I. COMPOSITE INDICES OF PRODUCTION, EMPLOYMENT AND OUTPUT PER MAN IN MANUFACTURING INDUSTRY IN 13 EUROPEAN COUNTRIES, 1950-56<sup>1</sup>

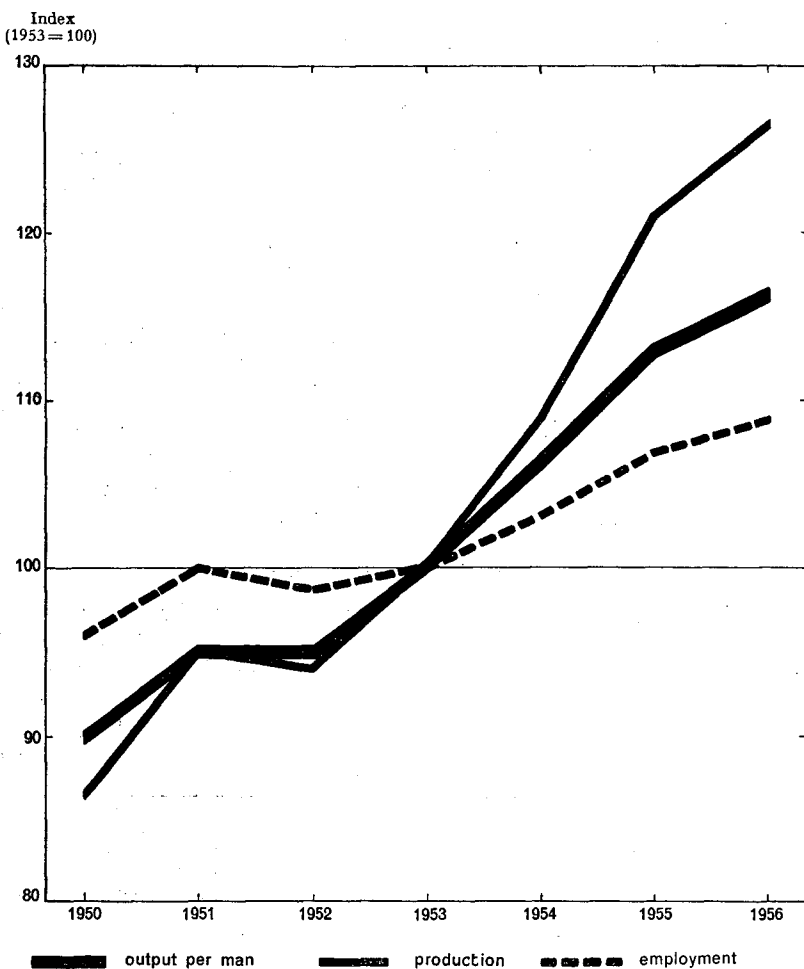
Year	Production		Employment		Output per man	
	Index (1953=100)	Percentage change from preceding year <sup>2</sup>	Index (1953=100)	Percentage change from preceding year <sup>2</sup>	Index (1953=100)	Percentage change from preceding year <sup>2</sup>
1950 ...	86	+11	96	+3	90	+8
1951 ...	95	+10	100	+4	95	+6
1952 ...	94	-1	99	-1	95	0
1953 ...	100	+6	100	+1	100	+5
1954 ...	109	+9	103	+3	106	+6
1955 ...	121	+11	107	+4	113	+7
1956 ...	126	+4	109	+2	116	+3

<sup>1</sup> The countries included are Austria, Belgium, Denmark, Finland, France, the Federal Republic of Germany, Ireland, Italy, the Netherlands, Norway, the Saar, Sweden and the United Kingdom.

<sup>2</sup> Based on rounded data.

<sup>1</sup> Production in France increased by about 55 per cent. from 1946 to 1950 while employment rose by only 15 per cent. In the Netherlands production nearly doubled and employment increased by 50 per cent. The corresponding percentages for the United Kingdom were 35 and 15 and for Western Germany (1948-50) 90 and 15.

CHART 1. PRODUCTION, EMPLOYMENT AND OUTPUT PER MAN,  
MANUFACTURING INDUSTRY IN WESTERN EUROPE, 1950-56



data are available. With the exception of one year (1952) the picture is one of continuous and markedly rapid growth in production, of continuous but distinctly slower growth in employment, and of substantial gains in productivity, with a noticeable decline in the rate of growth in production and in productivity emerging in 1956.

The composite picture presented in the table has been obtained by comparing indices of the aggregate volume of manufacturing production and the aggregate volume of manufacturing employment in all the countries. In composing the production index each country's manufacturing production has been weighted according to the country's net value of product in 1953. The over-all employment index has been composed on the same principle, that is by weighting each country's

employment index according to the total number of wage and salary earners employed in 1953.

Between 1950 and 1956, it will be noted, productivity increased by a full 29 per cent. This is the increase that would result from an annual gain of 4.5 per cent. over the six-year period. Considering that the pre-war level of productivity had been attained, for the countries as a whole, before the period began, an increase of this magnitude may be regarded with great satisfaction. There can be no doubt that its implications for higher levels of living are most favourable.

Another point of considerable importance is that this substantial gain in productivity was achieved without any net displacement of labour. On the contrary the period covered was one of steadily increasing employment and decreasing unemployment. At the end of the period the level of unemployment in Western Europe was at its lowest for many years.

The annual data reveal that the general upward trend of productivity suffered an interruption in 1952, when no gain at all occurred, and showed a very much smaller increase in 1956 than in the other years. It would be a mistake to attach too much importance to annual variations in the productivity data presented in table I. Brief lags or spurts may result from temporary or local factors and may be offset by developments in the following year. Levels of living, which are materially influenced by the general trend of productivity, may change but little in response to annual fluctuations. The stagnation of productivity in 1952, however, was so striking as to call for brief comment. The levelling-off of the rise in productivity in 1956 also justifies consideration because of its possible implications for the future.

The experience of 1952 was due largely to the price collapse and confusion in the production picture that were characteristic of European industry about that time, and had its origins very largely in the dropping-off of activities connected with the Korean War. Prices of many raw materials declined sharply, orders for industrial products decreased and a number of countries experienced a mild recession. There was a particularly sharp decline in textile production, severe enough for the depression sometimes to be referred to as the "textiles slump". But while production weakened appreciably, employment also declined somewhat; hence output per man barely held its own. The timing of these developments varied from country to country, and in some countries they were not experienced at all.

The productivity trend tended to level off in 1956, when the gain (3 per cent.) was smaller than for any post-war year other than 1952. The increase in employment also continued at a somewhat lower rate than in other recent years, and the gain in production was less marked.

This change in the trend of production was, in fact, apparent during 1955. Whereas output in the first half of that year was about 11.5 per cent. higher than in the first half of 1954, the difference had shrunk to less than 9 per cent. by the second half of the year. In 1956 as a whole manufacturing production was only a little more than 4 per cent. above the level of 1955.

The tendency of the productivity trend to level off in 1956 reflects the influence of a variety of factors, some of which are still obscure. To some extent, perhaps, it resulted from the delayed completion of recovery and reconstruction. In many Western European countries, moreover, the upward movement of prices and the deterioration in the balance of payments situation that became apparent in the latter

part of 1955 led to determined restrictive measures intended to prevent inflation. These measures took various forms—higher discount rates, import restrictions, the limitation of government investment, increased taxation (direct and indirect)—but were generally intended to protect government fiscal positions and to hold down spending. The level of investment weakened, the production of investment goods dropped and the utilisation of plant capacity also fell in some cases.

#### NATIONAL DIFFERENCES IN PRODUCTIVITY GROWTH

Information similar to that presented in table I could be computed for each country on the basis of the data included in chart 2, which summarises for 12 countries (excluding the Saar) the trend of production and employment in the manufacturing sector. However, some countries have more specialised and refined indices of productivity than those derived for the group of countries as a whole and it seems preferable to present national data where they exist. Table II thus reproduces productivity indices for the eight countries of Western Europe which are known to have issued such indices. The sources from which the data are taken are indicated in each case. It should be emphasised that the coverage of the indices differs widely from country to country and that they are therefore not directly comparable. They are nevertheless believed to represent the most reliable information available, having been calculated by national agencies in the best position to evaluate the national tendencies. No attempt has been made to present productivity indices for the other countries because calculations of this kind are apt to be misleading or liable to misinterpretation. The general trends are apparent from the material presented in chart 2. Rough approximations of gains in output per man-hour during the entire six-year period are indicated, for some countries, in the following pages.

The material reproduced in chart 2 suggests a certain similarity of pattern from one country to another. In all the countries productivity moved upwards during the period 1950-56 and in most of them substantial productivity gains were recorded. All experienced a comparative slow-down in their rate of productivity growth in or around 1952, and the upward trend slackened again in all cases in 1956, although these interruptions were more marked in some countries than in others.

This general pattern conceals quite striking national differences in the rate of productivity expansion. As already noted, the total productivity gain for the region was about 29 per cent. Country-by-country analysis indicates that five countries showed gains substantially greater than this regional average, five countries gains substantially less than this average, and two gains of about the same as the regional increase. The range of gain was wide, from just under 10 per cent. to over 50 per cent.

There were also noticeable differences between groups of countries. In some, as in the Federal Republic of Germany, the increase in manufacturing employment contributed about as much to increased production as did increased output per man. In most countries, however, production and productivity increased considerably faster than employment. This was particularly striking in France and Italy. In the Scandinavian countries the general tendency was a relatively slow rate of industrial expansion and a comparatively modest upward movement of productivity.

As indicated, five countries of Western Europe showed a rate of productivity growth substantially exceeding the regional average.

CHART 2. INDICES OF MANUFACTURING PRODUCTION AND EMPLOYMENT  
IN TWELVE COUNTRIES

(1953=100)

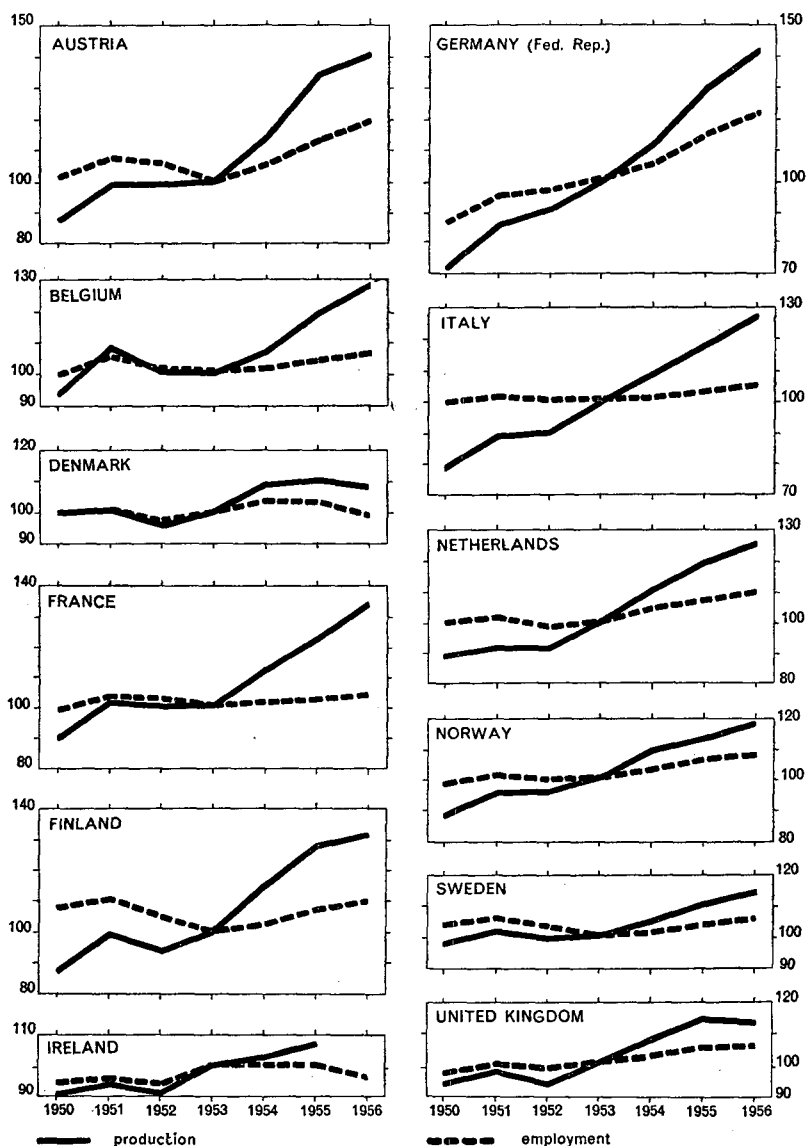


TABLE II. INDICES OF INDUSTRIAL PRODUCTIVITY IN EIGHT EUROPEAN COUNTRIES  
(1950=100)

Year	Austria <sup>1</sup>	Denmark <sup>2</sup>	Germany (Fed. Rep.) <sup>2</sup>		Ireland	Netherlands	Norway	Sweden <sup>3</sup>	United Kingdom
	Wage and salary earners	Man-hours	Wage and salary earners	Man-hours	Wage earners	Wage and salary earners	Man-hours	Man-hours	Wage and salary earners
1950 . . . . .	100	100	100	100	100	100	100	100	100
1951 . . . . .	109	102	109	110	99	102	104	103	101
1952 . . . . .	111	102	114	116	101	104	106	104	99
1953 . . . . .	115	—	121	123	105	112	112	109	104
1954 . . . . .	127	—	128	129	109	119	120	113 <sup>4</sup>	109
1955 . . . . .	139	—	139	140	—	124	—	—	112
1956 . . . . .	140	—	—	—	—	128	—	—	—

Sources : Austria : *Monatsberichte des Österreichischen Institutes für Wirtschaftsforschung* (index of productivity). Denmark : *Industriel Produktionsstatistik* (index of production divided by index of employment). Germany (Fed. Rep.) : *Die Industrie der Bundesrepublik Deutschland* (production per employed person per working day and per working hour). Ireland : *Statistical Abstract of Ireland* (volume of output per wage earner). Netherlands : *Statistiek van de Nijverheid* (production per employed person). Norway : *Norges Industri* (production per man-hour worked). Sweden : *Statistisk Årsbok för Sverige* (production per man-hour). United Kingdom : *Economic Survey* (output per man-year in industry).

<sup>1</sup> Excluding wood and furniture, printing and publishing, gas. <sup>2</sup> Manufacturing. <sup>3</sup> Excluding electricity, gas and water. <sup>4</sup> Provisional.



These countries are Austria, the Federal Republic of Germany, Finland, France and Italy. The data presented graphically in chart 2 suggest that in Italy productivity rose by more than 50 per cent., in Finland and France by between 45 and 50 per cent., in the Federal Republic of Germany by some 40 per cent., and in Austria by somewhat more than 35 per cent.

Analysis of the materials available for these countries reveals that productivity was increasing most rapidly in several different kinds of national situations and that no single factor or group of factors common to all the countries was responsible for the spectacular increases of productivity registered over the period. In two countries, namely Austria and the Federal Republic of Germany, an important stimulus was undoubtedly the fact that these nations, which suffered much devastation during the war and were occupied thereafter, had got off to a slower start after the war than other Western European countries and therefore experienced their chief vigorous post-war expansion during the period 1950-56. This meant also that they had the comparative advantage of much new plant and equipment. Both countries had ready access to labour supply, including an influx of vast numbers of refugees of working age. These factors combined to develop an economic situation in which manufacturing production expanded more rapidly than anywhere else in Western Europe, nearly doubling in the Federal Republic of Germany during the period under review; employment expanded very rapidly and productivity rose fast too. In other words production, employment and productivity in these countries enjoyed a simultaneous boom. But, as a result of the flexible employment situation, a large part of the gain in production came from expanding employment rather than from increasing productivity. In Finland, France and Italy, on the other hand, production expanded very rapidly without any marked expansion of the labour force. Production increased by about 50 per cent. or more, while employment showed little real change; by far the greater part of the production gain was accounted for by striking gains in productivity. In France, and even more so in Italy, a highly significant factor in the employment trend was the absorption of underemployment among the employed labour force; this reserve had to be reduced before further employment expansion was likely to take place. There was enormous capital investment in these countries and a marked tendency for the industrial structure to shift towards more capital-intensive industries; these factors, together with fuller plant utilisation, may also have had an effect on the trend of productivity.

Finally, it is impossible to ignore one further but less tangible factor operating in some of the five countries: the determination of their people to improve their economic position and to raise their levels of living. This factor, operating in an industrial climate conducive to industrial expansion and to productivity increases, appeared to be of special importance in the Federal Republic of Germany.

Five countries showed rates of productivity growth appreciably below the regional average: Ireland, the United Kingdom and the three Scandinavian countries. In Denmark output per man appeared to move comparatively slowly, rising in the neighbourhood of 10 per cent. for the six-year period. In Ireland, the United Kingdom and Sweden the gain was slightly higher; and in Norway it was the highest of this group of countries but was still under 25 per cent. While these productivity gains seem low in comparison with the gains registered in the above-average group over the same period, it must be emphasised that the rate

of gain is not low by more common standards. In Norway and Sweden, for example, the annual average gain was still relatively high, about 3.5 per cent. and 2.5 per cent. respectively, figures that compare favourably with the rate of productivity growth in Canada and the United States over the same period. In the United Kingdom the productivity gain appears to have been only slightly below the gain made in the United States for the same period.

Again, no single factor serves to explain recent productivity trends in this group of countries, and no factor common to all stands out as the determinant of the trends. It may be significant that two of the five countries—Ireland and Sweden—were not belligerents during the war and hence were not recovering from abnormally low levels of productivity. For Sweden this seems to have been rather an important factor. In some cases the threat of inflation was countered with measures that had a deterrent effect on manufacturing production. In others, limits to growth seemed to have been set by fully utilised plant capacity and labour supply.

In two countries, Belgium and the Netherlands, productivity gains approximated the regional average. In both countries productivity expanded rapidly, the great bulk of the increase in Belgium being registered after the 1951-52 slow-down, which restricted real progress for about two years. In each country plant capacity has been rather fully used and the employment situation fairly tight, with manpower shortages felt in certain sectors.

The preceding analysis suggests that a variety of factors have been responsible for the clear differences in national productivity trends between 1950 and 1956. Many others, such as new techniques, more efficient industrial organisation and management and labour attitudes and relations, may also have played a part in the favourable evolution of productivity throughout the region. For, whatever may be the reasons for the national differences in trend, the general picture is one of distinctly encouraging upward movement of productivity, at a rate of growth which probably compares most favourably with the experience of other parts of the world over the same period.

#### CONCLUSION

This encouraging evolution of productivity in Western European manufacturing industries is full of significance for the peoples of this area of the world. Productivity gains lie at the heart of economic growth and social progress. Nothing is more important as a basis for improving real wages and living standards.

Thus the record of progress since the war has been distinctly encouraging. Between 1950 and 1956 the rate of growth has been very rapid. Over this period productivity increased by roughly 29 per cent., indicating an average annual gain of about 4.5 per cent. over the six-year period.

This almost unprecedentedly rapid expansion of productivity has been achieved simultaneously with an increase in the level of employment and a general decrease in unemployment. For the region as a whole employment increased by some 14 per cent. and was at record levels. Italy was still faced with a problem of under-industrialisation but had taken in a huge slack of underemployment in its labour market during the six years.

Although the great majority of the countries reproduced the main features of the regional pattern of productivity growth, there were

striking national differences in the rate of growth, with gains ranging from under 10 per cent. to over 50 per cent. Productivity appears to have increased most rapidly in Austria, the Federal Republic of Germany, Finland, France and Italy. In all these countries spectacular gains were registered for the six-year period as a whole. In most of the other countries productivity increases were more modest but were still relatively favourable.

In 1956 there was a clearly perceptible slackening of the rate of manufacturing activity and productivity growth. This levelling-off inevitably raises the question whether this is the beginning of a new trend towards a distinctly slower rate of growth or whether it is simply a temporary and transitory interruption of the faster rate of growth characteristic of the post-war period. While it is not possible to answer this question at the present time, certain comments may be made.

First, it is inevitable that there should be year-to-year variations in any long-run pattern of economic growth. The 1952 slow-down proved a temporary interruption in the trend of the period covered. The 1956 slackening may be the same kind of "breath-catcher". Second, whatever may be the explanations for the recent slow-down of activity, the general post-war picture of economic growth has not changed. The continuing tendency is for production to rise appreciably more than employment and thus for output per man to rise. It cannot be said that an annual increase of 3 per cent. in productivity, as in 1956, is negligible. On the contrary, an increase of this order compares favourably with the annual rate of growth of productivity in the United States in recent years. Even if the present rate of growth should decrease further before stabilising, the rate of annual increase might still be regarded as satisfactory.

So far there is no clear or direct evidence of any deeply rooted tendency in the industrial situation or in production-employment-productivity relationships that would indicate any basic change in the productivity picture in Western Europe or would justify the conclusion that the period of relatively rapid economic expansion has come to an end.

---