

# Changes in the Industrial Distribution of the World Labour Force, by Region, 1880-1960

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## General introduction

IN THIS ARTICLE a set of tables are presented which are intended to give full statistical data on the world labour force and its distribution by economic activity and by major geographical region or group of countries, according to the latest censuses and going as far back in time as possible. Our work was based mainly on material assembled for a recent publication.<sup>3</sup> As far as can be ascertained, with the notable exception of a double study by the I.L.O.<sup>4</sup>, which deals only with 1950 and 1960, however, and which groups economic activities into three broad sectors, there has so far been no survey—or at any rate none based on comparatively detailed figures and going back in time—of the world labour force, its distribution and its structure. So we set out to make a synthesis of all the existing data, supplementing them with estimates whenever necessary. It must, however, be made clear that what has been done here is no more than an attempt, for the work shows imperfections and uncertainties, mainly owing to gaps in some of the fundamental statistics (see Appendix II). Certain data are given in italics in the tables to indicate plainly that they may not be reliable. The results must not, then, be regarded as definitive, but it does seem that, even as they are, they are of some interest.

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<sup>3</sup> *The working population and its structure*, published under the supervision of P. BAIROCH. By T. DELDYCKE, H. GELDERS and J.-M. LIMBOR. International Historical Statistics, Vol. 1 (Brussels, Editions de l'Institut de sociologie de l'Université libre de Bruxelles, 1968). Bilingual (French and English).

<sup>4</sup> "The world's working population", in *International Labour Review*, Vol. LXXIII, No. 5, May 1956, pp. 501-521; and Samuel BAUM: "The world's labour force and its industrial distribution, 1950 and 1960", *ibid.*, Vol. 95, Nos. 1-2, Jan.-Feb. 1967, pp. 96-112.

A series of reference dates has been chosen, and the world has been divided up into a number of regions. The choice of dates and geographical groupings has been largely determined by statistical and material exigencies. Division into smaller regions and smaller intervals would have meant an appreciable increase in the already very great mass of calculations required in the preparation of the tables. Accordingly, intervals of 20 years have been used for the data previous to 1920, and for more recent data intervals of ten years (the average interval between population censuses) have been chosen, except that 1940 has been omitted because data for that year are too patchy.

It will be noticed that the most recent data refer to 1960. This long statistical delay is due to the fact that the tables are based on data resulting from censuses and that the most recent census is that of 1960, for the majority of countries followed the recommendations of the United Nations and carried out their population censuses about that year. Since censuses are held in nearly all countries every ten years and since there are delays in the analysis and publication of results, it would be necessary to wait until 1975 at the earliest if similar calculations were to be made for 1970. Nevertheless, in the analysis of the tables, particularly those referring to the developed countries, estimates or data will be given for 1965, 1966 and sometimes 1967, as a guide to the changes that have occurred since 1960.

The accuracy of the data varies considerably with the period and the region. In general, it falls off as the data recede in time; those for 1960 and 1950, however, can usually be regarded as sufficiently accurate. Accuracy is generally better for the developed countries (for further details see Appendix II).

The choice of regions has also been influenced by the fact that the United Nations has divided the world into two main groups, namely the *developed countries*<sup>1</sup> and the *developing countries*.<sup>2</sup> Despite the imperfections of this classification—and none can be perfect—it has been adopted because it is widely used and so has the advantage of enabling the labour force data given here to be used in conjunction with other economic and social data worked out by the statistical services of the United Nations for the same regions. To these two major groups we have added that of all developed countries, obtained by including among the developed countries the countries of Eastern Europe and the U.S.S.R., whose present level of development brings them quite close to the developed countries of Western Europe, and that of all developing countries, obtained by including among the developing countries China (mainland), North Korea, Mongolia and North Viet-Nam.

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<sup>1</sup> Excluding the U.S.S.R. and Eastern Europe.

<sup>2</sup> Excluding China (mainland), North Korea, Mongolia and North Viet-Nam.

In addition to these very wide groupings a number of smaller regions have been taken into consideration. They are not the subject of analysis, but tables relating to them are given in Appendix I. One group has been defined under the name "long-industrialised Europe", consisting of that part of the continent that had already gone through the first stages of industrialisation by about 1900. This group, whose composition is indicated below, offers the advantage of allowing us to go back as far as 1880 with greater accuracy than would be possible for the whole of Europe. Lastly, calculations have been made not only for these mainly economic groups but also for geographic regions and for the customs unions of the European Economic Community and the European Free Trade Association.

The full list of the regions and groups, with the countries of which they are composed, is as follows.

*All developed countries:* Europe (including Turkey and the U.S.S.R.); Canada and the United States; Japan; Australia and New Zealand; the Republic of South Africa.

*Developed countries:* all developed countries except the U.S.S.R. and Eastern Europe.

*All developing countries:* the world except all developed countries.

*Developing countries:* all developing countries except China (mainland), North Korea, Mongolia and North Viet-Nam.

*Europe:* including Turkey in Asia but excluding the U.S.S.R.

*U.S.S.R.*

*Long-industrialised Europe:* Austria, Belgium, Czechoslovakia, Denmark, France, Germany, Italy, Luxembourg, the Netherlands, Norway, Sweden, Switzerland and the United Kingdom.

*E.E.C.:* Belgium, France, the Federal Republic of Germany, Italy, Luxembourg and the Netherlands.

*E.F.T.A.:* Austria, Denmark, Norway, Portugal, Sweden, Switzerland and the United Kingdom.

*North America:* Canada and the United States.

*Latin America:* all America except Canada and the United States.

*Japan.*

*South and East Asia:* all Asia except China (mainland), North Korea, Mongolia, North Viet-Nam; Japan; Turkey in Asia; the Middle East (Saudi Arabia and the other countries of the Arabian peninsula, Cyprus, Iran, Iraq, Israel, Jordan, the Lebanon and Syria).

*North Africa:* Algeria, Libya, Morocco, the Sudan, Tunisia and the United Arab Republic.

Estimates concerning the other parts of the world are too uncertain to be given separately, so they have been incorporated in the world totals.

In order not to overload the text, two sets of data are given in the appendices, as follows:

*Appendix I:* statistical tables (given without comment for the sake of brevity and to avoid repetition) on changes in the structure of the labour force in the principal

TABLE I. LABOUR FORCE OF THE WORLD

	1960		1950	
	Labour force (in millions)	Activity rate (per cent.)	Labour force (in millions)	Activity rate (per cent.)
<i>World</i> . . . . .	<i>1 263.0</i>	<i>41.5</i>	<i>1 061.0</i>	<i>42.2</i>
<i>All developed countries</i> . . . . .	<i>445.5</i>	<i>45.2</i>	<i>394.8</i>	<i>45.7</i>
Europe . . . . .	202.7	44.8	190.1	46.0
<i>of which : long-industrialised Europe</i> . . . . .	<i>125.9</i>	<i>44.0</i>	<i>121.3</i>	<i>45.2</i>
E.E.C. <sup>1</sup> . . . . .	72.3	42.7	69.8	44.8
E.F.T.A. <sup>2</sup> . . . . .	40.6	45.3	38.5	45.2
U.S.S.R. . . . .	<i>112.0</i>	<i>52.2</i>	<i>94.0</i>	<i>52.2</i>
North America <sup>3</sup> . . . . .	76.2	38.6	65.5	39.7
Japan . . . . .	44.0	47.1	36.3	43.6
Others <sup>4</sup> . . . . .	10.7	37.4	8.9	39.7
Developed countries <sup>5</sup> . . . . .	284.7	42.3	255.2	43.0
<i>All developing countries</i> . . . . .	<i>817.2</i>	<i>39.8</i>	<i>665.9</i>	<i>40.4</i>
Latin America . . . . .	70.0	33.5	56.8	35.2
South and East Asia <sup>6,7</sup> . . . . .	314.0	39.3	246.0	37.9
North Africa . . . . .	22.7	34.5	19.2	37.2
Others <sup>8</sup> . . . . .	<i>410.5</i>	<i>41.9</i>	<i>343.5</i>	<i>43.8</i>
Developing countries <sup>7</sup> . . . . .	504.5	38.2	406.3	38.2

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

<sup>1</sup> Before 1930 the whole of Germany is included; if this is done for 1930, the figures are: labour force, 78.5 million; activity rate, 48.0 per cent. <sup>2</sup> Before 1920 the whole of Ireland is included; if this is done for 1920, the figures are: labour force, 33.7 million; activity rate, 44.9 per cent. <sup>3</sup> For 1860 the figures are: labour force, 11.7 million; activity rate, 33.7 per cent. <sup>4</sup> Australia, New Zealand and the Republic of South Africa. <sup>5</sup> Ex-

regions other than: the world, all developed countries, the developed countries and the developing countries.

*Appendix II:* a description of our methodology and the sources consulted, together with a note on the degree of accuracy and the value of the data for each of the regions in question.

The *classification of economic activities* is in principle the international standard classification of the United Nations<sup>1</sup>, which has been adopted by the I.L.O. and the other international institutions, with certain restrictions (mentioned in Appendix II). However, Division 5 (electricity, gas, water and sanitary services) has been combined with Divisions 2-3 (manufacturing).

Except where otherwise stated, absolute figures are expressed in millions with a figure after the decimal point and have been rounded off in accordance with their degree of accuracy and their size. It should be remembered that the figures with a wider margin of error are given in italics. This is true in particular of the data for the whole of the world, the lack of precision in the statistics of China (mainland) being responsible for the additional margin of error.

<sup>1</sup> United Nations: *International Standard Industrial Classification of All Economic Activities*, Statistical Papers, Series M, No. 4, Rev. 1 (New York, 1958).

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## AND THE MAJOR REGIONS, 1880-1960

1930		1920		1900		1880	
Labour force (in millions)	Activity rate (per cent.)	Labour force (in millions)	Activity rate (per cent.)	Labour force (in millions)	Activity rate (per cent.)	Labour force (in millions)	Activity rate (per cent.)
939.0	45.5	860.0	46.6	750.0	46.7	—	—
361.5	47.6	329.0	48.5	273.1	48.3	—	—
181.7	47.3	169.6	48.0	140.9	45.7	117.1	44.7
119.1	47.7	115.2	48.8	98.8	45.7	81.8	44.5
65.8	48.2	78.3	50.8	65.2	46.0	52.9	43.8
36.2	47.6	32.3	44.9	30.3	44.9	25.8	45.4
90.0	55.9	81.0	57.3	72.0	58.7	—	—
52.8	39.5	44.8	39.0	31.1	38.0	19.0	34.9
29.3	45.9	27.0	48.7	24.8	56.5	19.5	53.3
7.7	46.7	6.5	48.2	4.8	51.6	3.5	49.4
219.2	44.6	212.4	47.1	174.8	44.9	136.9	43.5
577.7	44.2	531.4	45.6	477.7	45.8	—	—
39.0	36.0	32.0	36.5	—	—	—	—
202.0	40.7	195.0	43.8	181.0	44.3	—	—
16.2	41.5	14.2	40.2	—	—	—	—
320.4	48.5	290.2	48.5	264.1	48.3	—	—
320.2	40.5	294.9	42.5	264.7	42.9	—	—

cluding the U.S.S.R. and Eastern Europe. Before 1930 the whole of Germany is included; if this is done for 1930, the figures are: labour force, 231.9 million; activity rate, 44.7 per cent. <sup>6</sup> Excluding Japan. <sup>7</sup> Excluding China (mainland), North Korea, Mongolia and North Viet-Nam. <sup>8</sup> China (mainland), North Korea, Mongolia, North Viet-Nam, the Middle East, Africa (excluding North Africa and the Republic of South Africa) and Oceania (excluding Australia and New Zealand).

Since variations in methods of including unpaid family workers in censuses introduce a further margin of error, particularly in the numbers working in agriculture (see Appendix II), separate figures for economically active males in agriculture have been included.

### Principal findings and comments

The principal findings of the calculations are given here with an analytical commentary. As was pointed out earlier, only tables relating to the world and the major economic regions are reproduced and analysed in this article. Moreover, the analysis is comparatively short and has deliberately been kept concise; only the main points and the causes of the changes observed have been picked out.

Table I gives changes in the total labour force and in activity rates (that is to say the percentage of the total population represented by the labour force) for the world and the major regions. Next, four tables give changes in the distribution of the labour force by economic activity for the world, all developed countries, the developed countries and the

developing countries. Lastly, table VI, which is a synthesis of tables II to V, gives the percentages of the three broad economic sectors for the world and the major regions.

### **I. Total labour force and activity rates**

Table I shows that a very marked fall in the activity rates of the world population has been occurring since 1900 and the process has been accelerating appreciably since 1930. This is due to a combination of the following two factors.

*Aging of the population in the developed countries.* As a result of what demographers have called the second demographic revolution, which may be defined in very broad terms as a great reduction in the birth rate (the first revolution having been chiefly marked by a reduction in mortality), the population in most developed countries has been aging. This phenomenon, which varies considerably from country to country, taken with the gradual extension of retirement schemes and rise in school attendance rates, has led to a reduction in the labour force as a proportion of the whole population.

*Demographic inflation in the developing countries.* The introduction of modern medical techniques in the developing countries has resulted in a great reduction in mortality—a reduction that has occurred more abruptly than it did in Western Europe and North America—without any appreciable fall in the extremely high fertility rates characteristic of traditional societies. This has caused a constant acceleration of the rate of demographic growth, which has led in turn to a broadening of the base of the age pyramid and so to an increase in economically inactive young persons as a proportion of the total population.

The fall in the activity rate is more marked in the developing countries. Obviously, the faster growth of the total labour force of these countries has therefore accentuated the reduction in the world activity rate. It should be observed that in the developing countries the process has been slowed down a little by the fairly general increase in the activity rates of the female population. Indeed, in the tertiary sector, where employment is growing very rapidly, women find wide possibilities of recruitment, which compensate for the jobs they have lost through the reduction in agricultural activity.

### **II. Structure of the labour force, by economic activity**

#### **WORLD**

The fact that a growing proportion of the world population is represented by the developing countries—67 per cent. in 1960<sup>1</sup>—means

<sup>1</sup> In 1968 it had already reached nearly 70 per cent.

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that the structure of the world labour force is characterised by a low level of development (see table II). In 1960 nearly 60 per cent. of this labour force was still employed in agriculture, though as long ago as 1810 England succeeded in feeding its entire population with only 35 per cent. of its working population engaged in agriculture. It should, however, be recalled that at that time England, which was about 80 years ahead of the rest of Western Europe and the United States, was the only country to have attained such a level of development. The average output per agricultural worker for the world as a whole is at present, despite the very high productivity of the developed countries, similar, or even inferior, to the average output of these countries at the time when 60 per cent. of their labour force was engaged in agriculture.<sup>1</sup>

TABLE II. WORLD LABOUR FORCE, BY ECONOMIC ACTIVITY, 1900-60  
(Absolute figures and percentages)

	1960		1950		1930		1920		1900	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	734.0	58.1	652.0	61.5	630.0	67.1	598.0	69.5	541.0	72.1
of which : men . . . . .	434.0	—	389.0	—	378.0	—	355.0	—	324.0	—
Mining and quarrying . . . . .	12.0	1.0	11.0	1.1	9.0	0.9	8.0	0.9	6.0	0.7
Manufacturing . . . . .	181.0	14.0	135.0	12.7	111.0	11.8	100.0	11.7	81.0	10.8
Construction . . . . .	48.0	3.8	33.0	3.1	19.0	2.0	14.0	1.7	12.0	1.6
Commerce . . . . .	92.0	7.3	76.0	7.2	64.0	6.8	52.0	6.0	39.0	5.2
Transport, storage and communication . . . . .	49.0	3.9	41.0	3.9	34.0	3.6	28.0	3.3	18.0	2.4
Services . . . . .	148.0	11.7	112.0	10.6	73.0	7.8	60.0	6.9	53.0	7.0
Total labour force	1 263.0	100.0	1 061.0	100.0	939.0	100.0	860.0	100.0	750.0	100.0
Total population .	3 040.0	—	2 513.0	—	2 065.0	—	1 845.0	—	1 610.0	—

Note: The figures given in this table involve a fairly wide margin of error (see introduction).

The period 1950-60 clearly marks an acceleration in the contraction of agriculture's share of the labour force, a process mainly due to changes in this field in the developed countries. The rate of demographic expansion in the developing countries, however, ensures that the absolute number of persons working in agriculture continues to increase. The problem will be touched on again when changes in the structure of the labour force of the developing countries are being considered.

<sup>1</sup> A very rough approximation of the level of productivity may be obtained by calculating the output of cereals per male worker. For the year 1960 the figure was about 2,200 kg per male worker for the whole world. In France around 1850-55, when that country had about 60 per cent. of its working population engaged in agriculture, the corresponding figure was about 2,700 kg.

The percentage of the labour force engaged in mining and quarrying had reached its peak soon after 1950, for the year 1960 already shows a fall. The reduction in the relative importance of mining and quarrying results to a very great extent from a combination of the following three factors:

(1) a fairly large-scale replacement of coal as the main source of energy by petroleum and natural gas<sup>1</sup>, which implies a very great reduction in the number of economically active persons required to produce a given quantity of energy<sup>2</sup>;

(2) the replacement of the developed countries in the production of a great many ores by developing countries with highly profitable deposits<sup>3</sup>;

(3) the low rate of expansion of mining and quarrying caused by a continuing reduction in the input of raw materials in the manufacturing industries, owing to technical progress.

The low level of development in the structure of the world labour force even in 1960 is also evidenced by the comparatively minor role of manufacturing. Although the percentage of agricultural jobs in 1960 in the world as a whole was not very different from that of the developed countries in 1860, the world level of employment in manufacturing can be compared only with the level reached by these countries around 1800-20. The difference can be explained in the first place by the fact that over a very long period (running at any rate to about 1940) productivity increased more rapidly in manufacturing than in agriculture. Moreover, an appreciable fraction of the demand for industrial goods in the developing countries is met by the industries of the developed countries. Lastly, the gap between the level of consumption per head of population in the developed countries and that in the developing countries is much

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<sup>1</sup> Whereas coal and lignite represented 79.4 per cent. of the total world production of primary energy in 1929, the proportion fell to 61.6 per cent. in 1950 and 51.0 per cent. in 1960. In 1967 it was about 42 per cent.

<sup>2</sup> Two examples of energy production per economically active person now follow. The first is that of the United States, though this example is probably not very representative of the developed countries as a whole, since the productivity of the coalfields there is one of the highest in the world, whereas that of the oilfields is low. Nevertheless, the figures, converted into coal equivalent (by using the coefficients established by the United Nations), show an annual production per economically active person of some 350 tons for petroleum and natural gas and of some 310 tons for coal and lignite. These data relate to 1963.

The second example shows a rather more significant situation: production in the French coal mines (including lignite mines) was 290 tons per economically active person in 1965; this may be compared with the production of the oilfields of Libya, which was 4,300 tons in 1964. In most of the countries of the Middle East the figure is well over 6,000. It should, however, be noted that, owing to the lack of uniformity in employment statistics, the figures must be regarded as very approximate.

<sup>3</sup> For example the production of iron ore in the developing countries increased from 8 per cent. of the world total (China (mainland) and the U.S.S.R. being excluded) in 1948 to 17 per cent. in 1955 and 37 per cent. in 1965 (P. BAIROCH: *Diagnostic de l'évolution économique du tiers monde, 1900-1966* (Paris, Gauthier-Villars, 1967), p. 76).



greater for industrial products than for agricultural products, owing to the weaker income elasticity in the demand for food products. The result is that in 1960 the developed countries accounted for less than 14 per cent. of the world agricultural labour force but for more than 60 per cent. of the labour force in manufacturing. Average productivity in manufacturing thus reached a much higher level over the world in 1960 than it did in the industrialised countries alone at the beginning of the nineteenth century.

The great increase in the relative and absolute volume of employment in construction must also be compared with the relatively slight rise of productivity in this industry. The destruction caused by the two world wars, however, has also played a part in this process, to which further reference will be made in our analysis of the developed countries.

With regard to the tertiary sector, it will be seen that the number of persons engaged in services has increased the most quickly. The details and causes of this development will be discussed in our analysis by major region.

#### DEVELOPED COUNTRIES

Two tables are given here. Table III relates to *all developed countries*, that is to say not only to the "western" countries traditionally regarded as developed<sup>1</sup> but also to the countries of Eastern Europe and the U.S.S.R., whose level of economic development may be considered almost equal, or

TABLE III. LABOUR FORCE IN ALL DEVELOPED COUNTRIES, BY ECONOMIC ACTIVITY, 1900-60

(Absolute figures and percentages)

	1960		1950		1930		1920		1900	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	136.0	30.5	152.9	38.7	181.2	50.1	179.9	54.7	162.2	59.4
of which : men . . . . .	71.6	—	83.6	—	108.4	—	106.8	—	98.1	—
Mining and quarrying . . . . .	6.9	1.5	7.6	1.9	6.5	1.8	6.5	2.0	4.5	1.6
Manufacturing . . . . .	114.5	25.7	89.0	22.6	67.1	18.6	60.4	18.4	46.0	16.8
Construction . . . . .	27.7	6.2	20.5	5.2	14.0	3.9	9.9	3.0	8.7	3.2
Commerce . . . . .	51.7	11.6	39.7	10.1	31.4	8.7	22.8	6.9	14.1	5.2
Transport, storage and communication . . . . .	25.8	5.8	21.4	5.4	16.5	4.6	13.9	4.2	8.4	3.1
Services . . . . .	82.9	18.6	63.6	16.1	44.9	12.4	35.7	10.8	29.3	10.7
Total labour force	445.5	100.0	394.8	100.0	361.5	100.0	329.0	100.0	273.1	100.0
Total population . . . . .	986.1	—	864.0	—	758.9	—	678.5	—	565.6	—

<sup>1</sup> For definitions of the regions see p. 313.

TABLE IV. LABOUR FORCE IN DEVELOPED COUNTRIES  
(Absolute figures)

	1960		1950	
	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	65.2	22.9	78.3	30.7
<i>of which : men</i> . . . . .	42.2	—	52.1	—
Mining and quarrying . . . . .	4.8	1.7	5.2	2.1
Manufacturing . . . . .	78.0	27.4	63.1	24.7
Construction . . . . .	19.6	6.9	15.5	6.1
Commerce . . . . .	43.9	15.4	33.7	13.2
Transport, storage and communication . . . . .	15.5	5.4	14.1	5.5
Services . . . . .	57.6	20.3	45.3	17.8
Total labour force	284.7	100.0	255.2	100.0
Total population .	673.2	—	594.1	—

<sup>1</sup> Left-hand columns: including figures for the area now forming the Federal Republic of Germany; right-hand

even superior, to that of certain European countries. The data in table IV relate to the *developed countries*, to which this study will be mainly confined. The statistics on the countries of Eastern Europe have a wider margin of error, since most of the definitions used there during the recent period are different from the international standard and for the more distant periods the statistical apparatus in many of these countries was primitive.

On the whole, the changes that have occurred in the structure of the labour force in the developed countries fit fairly well into the pattern emphasised by Colin Clark, which Jean Fourastié has adopted and developed in his studies, namely a gradual shift of the labour force from agriculture, first to industry and then to services.

It will be noted that in agriculture there is a reduction not only in its share of employment but also in the actual number of persons employed. From 84-85 million during the period 1900-20 this number fell to 65 million in 1960. Moreover, what is more significant, the decline in this sector's share of the labour force has been constantly accelerating, except between 1930 and 1950. The annual rates of decline are as follows:

1880-1900 . . . . .	0.8
1900-1920 . . . . .	1.0
1920-1930 . . . . .	1.1
1930-1950 . . . . .	0.8
1950-1960 . . . . .	3.0

Since 1960 the decline has been even more rapid, as evidenced by the tendencies observed in most of the developed countries. It can be

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## BY ECONOMIC ACTIVITY, 1880-1960

and percentages)

1930 <sup>1</sup>				1920 <sup>2</sup>		1900 <sup>2</sup>		1880 <sup>2</sup>	
In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
79.3	36.2	83.2	35.9	84.7	39.9	84.0	48.1	76.9	56.2
55.1	—	57.2	—	57.4	—	57.7	—	53.0	—
5.3	2.4	5.6	2.4	6.0	2.8	4.2	2.4	2.4	1.7
51.0	23.3	55.5	23.9	52.0	24.5	38.4	22.0	25.8	18.8
10.6	4.8	11.3	4.9	8.5	4.0	7.5	4.3	4.9	3.6
25.6	11.7	27.2	11.7	20.3	9.6	12.0	6.9	6.9	5.0
12.8	5.9	13.5	5.8	12.3	5.8	7.2	4.1	3.9	2.8
34.5	15.7	35.7	15.4	28.7	13.5	21.5	12.3	16.1	11.7
219.2	100.0	231.9	100.0	212.4	100.0	174.8	100.0	136.9	100.0
491.6	—	518.9	—	451.0	—	389.2	—	314.5	—

columns: including figures for the whole of Germany. <sup>2</sup> Including figures relating to the whole of Germany.

estimated that in the developed countries agriculture's share of the labour force was not more than 17 per cent. in 1967, compared with 23 per cent. in 1960, which means a reduction of 4 per cent. a year. Accordingly, *the change that occurred in this sector in the 17 years between 1950 and 1967 is relatively as great as the change that occurred in the 60 years between 1890 and 1950.* It should also be observed that the share of 17 per cent. of the labour force engaged in agriculture (in the developed countries) is affected by the existence of a few countries in which this sector still occupies a comparatively important place, for example Finland, Italy, Portugal, Spain and Turkey. In the more advanced countries the percentage is obviously lower. By 1960 <sup>1</sup> North America had no more than 7.3 per cent. of its total labour force engaged in agriculture, and in 1967 the proportion was already very close to 5 per cent., despite a great surplus in agricultural production.

This increasingly rapid decline in the agricultural labour force should be considered in relation with the changes occurring in the rate at which productivity has increased in agriculture in comparison with the other two sectors. Whereas before the Second World War gross labour productivity usually increased more rapidly in the non-agricultural sectors, particularly industry, since then the contrary has generally been the case. For instance in the United States, where production per man-hour increased annually by 0.7 per cent. in agriculture and by 2.2 per cent. in the non-agricultural sectors between 1889 and 1937, the annual rate of increase

<sup>1</sup> See Appendix I, table E.

between 1937 and 1966 remained unchanged in the non-agricultural sectors but advanced to 4.4 per cent. in agriculture.<sup>1</sup>

The economically active population engaged in mining and quarrying in the developed countries reached its absolute and relative peak about 1920: at that time the numbers working in this industrial division were 6 million or nearly 3 per cent. of the total labour force. Since then there has been a rapid fall in employment. As has already been seen, this is the result of a slower increase in the demand for the products of the division, the partial replacement of coal by petroleum (which means in the developed countries the substitution of an almost exclusively imported product for a local product) and the replacement of the European mines, which are approaching exhaustion, by those in the developing countries, which have the advantage of more favourable natural conditions and have become economic to work as a result of technical progress and the reduction of transport costs.

The stabilisation of the relative level of employment in manufacturing that Colin Clark pointed out about 1938, on the basis of the statistics available at that time, was in fact only temporary. Between 1930 and 1950 and between 1950 and 1960 there have been further increases in the labour force in this division, both absolute and relative. It does appear, however, from an analysis of recent data relating to the most developed countries, and in particular the United States, that a certain stabilisation of its relative importance may be expected in the medium term<sup>2</sup> and a gradual reduction, whose extent it is difficult to predict, in the long term.

The rate of increase in the proportion of the working population employed in construction was comparatively low until 1920, since when it has been rising. It seems likely that the destruction in the two world wars, particularly the second, is largely responsible for the increase of employment in this division. Partial confirmation may be found in the differences between the changes occurring in the United States and those occurring in the countries of the European Economic Community.<sup>3</sup> Thus between 1930 and 1960 the percentage of the working population employed in this division rose from 6.3 to 6.5 in North America but in the countries of

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<sup>1</sup> According to United States Department of Commerce, Bureau of the Census: *Historical statistics of the United States: colonial times to 1957; continuation to 1962 and revisions* (Washington, D.C., 1965), and *Statistical Abstract of the United States: 1967* (88th annual edition) (Washington, D.C., 1967). The following changes occurred in annual rates of increase of production per man-hour in the United States: for the period 1909-37 the rate increased by 0.6 per cent. in agriculture and 3.0 per cent. in manufacturing, and for the period 1937-65 the rates were 4.4 per cent. and 3.1 per cent. respectively. In France gross labour productivity in agriculture increased annually by 6.6 per cent. between 1949 and 1963, compared with 4.5 per cent. for the economy as a whole (L. A. VINCENT: "Productivité et prix relatifs dans quinze branches de l'économie française (1949-1963)", in *Etudes et conjoncture* (Paris, Institut national de la statistique et des études économiques), No. 2, Feb. 1966, pp. 17-84).

<sup>2</sup> For the United States the forecasts consulted show a considerable fall in the relative importance of this division.

<sup>3</sup> Only partial because there were also differences in the rate at which productivity increased.

the E.E.C. taken together it rose from 5.2 to 8.5 (see Appendix I, tables C and E).

The changes occurring in the various divisions of economic activity included in the tertiary sector will now be considered. The year 1930 may be regarded as forming a break. About that time there occurred a clear reversal of trends in each division. Between 1900 and 1930 the increase in the relative importance of the division "commerce" was faster than that of "services", whereas between 1930 and 1960 the reverse occurred. The trend has been even more pronounced since 1960. Furthermore, up to 1930 the relative importance of employment in the division "transport, storage and communication" was increasing, whereas after that date it began to diminish. The over-all slowing down in the expansion of the "commerce" division covers, it is true, opposing trends within the major groups: the rapid expansion of employment in banks and insurance contrasts with its slower expansion in wholesale and retail trade. Since trade predominates markedly, the whole division is affected by it. It should be observed that the development of modern forms of distribution is responsible for the slower expansion of employment in trade, for the financial turnover is increasing rapidly.

The reduction in transport's share of employment that has been occurring since 1930 is largely due to the great increase in productivity in this division, though there are also other, less direct factors. The greater number of motor vehicles in circulation has made possible an increase in passenger transport, but this has taken the form of an extensive replacement of public transport by private vehicles, leading to a reduction in employment in this division, since the drivers of private cars, whatever the purpose of their journeys—leisure or work<sup>1</sup>—are quite rightly not regarded as part of the transport labour force (except chauffeurs and taxi drivers). Another point is that the development of the transport of liquids by pipeline has in itself reduced employment. Lastly, persons engaged in transport in the water, gas and electricity services are not counted in the transport division.

The most striking point concerning services is the rapid increase in their share of employment since 1950. While, as a rule, it is not yet the most important division in the other developed countries, where manufacturing still employs a larger number of persons, in the United States it has been so since about 1964-65. In this division too, as in the others, there have been profound changes in the major groups: a reduction (even in absolute figures) in personal services (in particular, domestic service) and a great increase in government and community services.

This observation, however, takes us beyond the context of the present analysis; in fact, changes within each of the divisions may have been

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<sup>1</sup> This generally means travelling to and from the place of work but it may also mean travelling in the course of work.

as important as those in the over-all percentage of the division. The example given above may, for instance, be compared with that of manufacturing: its share of the labour force in 1960 (27 per cent.) is certainly very different from the figure of a century ago, which was about 17 per cent.; but the internal structure of the division has been even more profoundly changed. Textiles and clothing, which represented some 65 per cent. around 1860, fell below 20 per cent. in 1960, and activities that were entirely unknown in 1860 now fill an important place. Nevertheless, whatever imperfections there may be in classification by division, the method remains extremely useful in providing glimpses of the stages of the far-reaching changes introduced by the Industrial Revolution into the economic life, and therefore the social life, of what are today called the developed countries.

#### DEVELOPING COUNTRIES

It is worth emphasising once again the reservations expressed earlier on the value of statistics relating to the labour force in the developing countries. It should, however, be observed that if the divisions of economic activity are being considered, the margin of error would appear to be fairly small when the developing countries are taken together. The figures in table V give a fairly realistic picture of the actual structure of economic activities in these countries, considering the general limitations inevitable in statistics concerning the structure of the labour force.

TABLE V. LABOUR FORCE IN DEVELOPING COUNTRIES, BY ECONOMIC ACTIVITY, 1900-60

(Absolute figures and percentages)

	1960		1950		1930		1920		1900	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	356.7	70.7	298.0	73.3	245.2	76.6	228.9	77.6	206.3	77.9
<i>of which : men . . . . .</i>	242.0	—	205.0	—	168.1	—	153.7	—	139.1	—
Mining and quarrying . . .	3.1	0.6	2.4	0.6	1.3	0.4	1.1	0.4	25.8	9.8
Manufacturing . . . . .	44.8	8.9	30.9	7.6	27.3	8.5	25.1	8.5		
Construction . . . . .	10.3	2.0	7.1	1.8	3.5	1.1	2.8	1.0		
Commerce . . . . .	30.0	5.6	23.7	5.8	17.3	5.4	15.8	5.4	32.6	12.3
Transport, storage and communication . . . . .	11.1	2.2	8.1	2.0	5.9	1.8	4.7	1.6		
Services . . . . .	48.6	9.6	36.2	8.9	19.6	6.1	16.3	5.5		
Total labour force	504.5	100.0	406.3	100.0	320.2	100.0	294.9	100.0	264.7	100.0
Total population .	1 320.3	—	1 062.8	—	790.6	—	693.6	—	616.5	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

As might be expected, the structure of the labour force in the developing countries is an expression of their low level of economic development. Over 70 per cent. of the working population was still engaged in agriculture in 1960, this being close to the percentage in the developed countries at the beginning of the nineteenth century, implying a gap of about a century and a half.

Owing, however, to the existence of more developed regions with which the developing countries have been maintaining economic relations for over a century, distortions have been introduced into the economy of these countries and so, obviously, into their pattern of employment. This can be seen particularly well in what has been called a hypertrophy of the tertiary sector, a phenomenon that is clearly apparent in the developing countries as a whole, although it is more or less pronounced in individual countries. Accordingly, the developing countries, although their economy is pretty close to the level shown by the percentage of the labour force engaged in agriculture, which is that of the developed countries of Western Europe and North America around 1800, show a percentage in the division "commerce" equivalent to that reached by these same developed countries in 1890. For services and for transport, storage and communication the corresponding period is about 1840-50. On the other hand, the proportion of the labour force in manufacturing and in mining and quarrying is lower than that reached by the developed countries around 1800. For construction the proportion corresponds fairly closely to the level of development reached.

In the tertiary sector these differences can be explained by the rapidly swelling volume of employment in trade and public services in most of the countries concerned and particularly, as will be seen further on, in Latin America. The gap between the income level of the tertiary sector and that of agriculture makes possible a fall in the productivity of the tertiary sector that does not deprive marginal members of its labour force of an income at or above the subsistence level. For manufacturing, as has already been pointed out, the low percentages observed result from a combination of two elements: first, the fact that the developing countries are very considerable net importers of manufactured goods, and secondly, the existence in these countries of highly productive units of production employing techniques of the mid-twentieth century, whereas consumption per head is very low (equivalent to that of the industrialised countries at the beginning of the nineteenth century).

With regard to agriculture, the reduction in the relative importance of this division is small, which, in view of the demographic expansion, leads to a great increase in the absolute size of its labour force. By calculating on the basis of economically active males, for whom the figures are more meaningful (it has already been noted in the introduction that it is in regard to unpaid family workers, and to women generally, that census practices vary most significantly), an increase to almost double

can be observed between 1900 and 1960. This has important economic consequences, for, since little agricultural land is available, it implies a reduction by nearly half of the area worked by each member of the agricultural working population. This largely explains the problems involved in increasing agricultural productivity in the developing countries.

WORLD AND MAJOR REGIONS, BY BROAD ECONOMIC SECTOR

To facilitate comparison, changes between 1900 and 1960 in the distribution of the labour force among the three broad economic sectors (agriculture, industry and services), for all the regions, have been presented in a single table. Even if the classification of economic activities into three broad sectors, first recommended by Colin Clark and widely used since, has its faults, it is, nevertheless, extremely useful in giving an overall picture of the structure of economic activities.

TABLE VI. LABOUR FORCE OF THE WORLD AND MAJOR  
(Percentages of

	1960			1950		
	Agri- culture	Indus- try	Services	Agri- culture	Indus- try	Services
<i>World</i> . . . . .	<i>58.1</i>	<i>18.8</i>	<i>22.9</i>	<i>61.5</i>	<i>16.9</i>	<i>21.7</i>
<i>All developed countries</i> . . .	<i>30.5</i>	<i>33.5</i>	<i>36.0</i>	<i>38.7</i>	<i>29.7</i>	<i>31.6</i>
Europe . . . . .	31.8	36.3	31.8	39.2	32.3	28.5
<i>of which: long-industrialised</i>						
Europe . . . . .	17.0	43.9	39.1	25.0	40.2	34.9
E.E.C. <sup>1</sup> . . . . .	20.5	42.4	37.2	30.5	37.2	32.3
E.F.T.A. <sup>2</sup> . . . . .	11.5	44.7	43.7	15.2	43.8	40.9
U.S.S.R. . . . .	43.8	27.5	28.7	53.2	22.7	24.2
North America <sup>3</sup> . . . . .	7.3	36.3	56.4	12.9	35.5	51.6
Japan . . . . .	32.6	29.7	37.6	48.4	22.6	29.2
Others <sup>4</sup> . . . . .	22.9	34.9	42.2	27.2	32.4	40.3
Developed countries <sup>5</sup> . . .	22.9	36.0	41.1	30.7	32.9	36.5
<i>All developing countries</i> . . .	<i>73.1</i>	<i>11.2</i>	<i>15.6</i>	<i>75.0</i>	<i>9.3</i>	<i>15.7</i>
Latin America . . . . .	50.1	20.0	30.0	54.1	18.6	27.3
South and East Asia <sup>6, 7</sup> . . .	73.1	10.5	16.4	75.3	8.8	16.0
North Africa . . . . .	69.6	10.3	20.0	72.9	9.7	17.2
Others <sup>8</sup> . . . . .	77.3	10.4	12.3	78.3	8.1	13.6
Developing countries <sup>7</sup> . . .	70.7	11.5	17.8	73.3	9.9	16.7

Note: The figures including a fairly wide margin of error (see introduction) are in italics.

<sup>1</sup> Before 1930, including the whole of Germany; if this is done for 1930, the percentages are as follows: 34.4, 36.8, 28.8. <sup>2</sup> Before 1920, including the whole of Ireland; if this is done for 1920, the percentages are as follows: 20.2, 41.3, 38.5. <sup>3</sup> For 1860: 60.5, 19.9, 19.6. <sup>4</sup> Australia, New Zealand and the Republic of South Africa.



In table VI and the analysis based on it, agriculture (or the primary sector, according to Clark's classification) includes agriculture, forestry, hunting and fishing, or Division 0 of the International Standard Industrial Classification of All Economic Activities. Industry (or the secondary sector) includes mining and quarrying, manufacturing, construction and electricity, gas, water and sanitary services, or Divisions 1, 2-3, 4 and 5. Services (or the tertiary sector) cover the other economic activities, namely commerce, transport, storage and communication, and, lastly, services proper (Divisions 6, 7 and 8). The terms "agriculture", "industry" and "services" will be regarded as synonyms for the primary, secondary and tertiary sectors respectively.

If a comparison is made on this basis between developments in North America and in Europe, it is very easy to see the divergent results that the two world wars have had on these economic groups. In fact, both from 1900 to 1920 and from 1930 to 1950 the trend towards a more

REGIONS, BY BROAD ECONOMIC SECTOR, 1900-60

*total labour force)*

1930			1920			1900		
Agri- culture	Indus- try	Services	Agri- culture	Indus- try	Services	Agri- culture	Indus- try	Services
67.1	14.7	18.2	69.5	14.3	16.2	72.1	13.2	14.7
50.1	24.2	25.7	54.7	23.3	22.0	59.4	21.7	19.0
43.6	30.0	26.5	47.2	28.5	24.3	50.6	28.3	21.1
29.7	38.0	32.3	34.3	36.4	29.3	39.2	35.9	25.1
35.1	35.7	29.2	40.0	33.9	26.2	44.4	33.0	22.8
19.1	39.8	41.1	20.0	41.9	38.2	28.7	41.4	29.9
79.5	9.1	11.4	85.5	6.7	7.7	82.1	7.3	10.7
23.3	32.4	44.4	28.2	34.9	36.9	38.3	30.8	30.9
49.5	20.9	29.6	54.6	21.4	23.9	71.1	14.1	14.8
46.5	22.4	31.0	47.5	23.4	29.2	52.9	22.0	25.1
36.2	30.5	33.3	39.9	31.3	28.8	48.1	28.7	23.3
77.7	8.9	13.5	78.7	8.6	12.6	79.4	8.4	12.2
63.4	16.1	20.5	65.9	15.3	18.6	—	—	—
76.8	10.2	13.1	77.5	10.4	12.2	76.4	10.8	12.8
76.0	8.3	15.6	76.8	8.1	15.2	—	—	—
80.1	7.2	12.8	80.9	6.9	12.2	82.3	6.4	11.3
76.6	10.0	13.4	77.6	9.9	12.5	77.9	9.8	12.3

\* Excluding the U.S.S.R. and Eastern Europe. Before 1930, including the whole of Germany; if this is done for 1930, the percentages are as follows: 35.9, 31.2, 33.0. <sup>6</sup> Excluding Japan. <sup>7</sup> Excluding China (mainland), North Korea, Mongolia and North Viet-Nam. <sup>8</sup> China (mainland), North Korea, Mongolia, North Viet-Nam, the Middle East, Africa (excluding North Africa and the Republic of South Africa) and Oceania (excluding Australia and New Zealand).

highly developed structure of the labour force was very rapid in North America, whereas it remained moderate in Europe. On the other hand, from 1920 to 1930 and from 1950 to 1960 the scope of developments in the two regions was, if not similar, at least comparable. The gap between North America and long-industrialised Europe, which had so far been comparatively small, increased during the periods 1900-20 and 1930-50 without any narrowing in the intermediate periods. For instance in 1900 the proportion of the labour force engaged in the primary sector in North America was only 2 per cent. lower than that of long-industrialised Europe; but this gap rose to 18 per cent. in 1920, 21 per cent. in 1930, 48 per cent. in 1950 and 57 per cent. in 1960. The same difference can be seen in a comparison of developments in Japan with those in North America (only for the period of the Second World War, since Japan remained comparatively untouched by the First). The percentage of the labour force engaged in agriculture, which had fallen from 71.1 in 1900 to 54.6 in 1920 and 49.5 in 1930, was 48.4 in 1950 and 32.6 in 1960.

Although the figures may not be entirely comparable, it is of interest to point out the wide gap between the U.S.S.R. and the other countries of Europe. In 1960 the U.S.S.R. still had 44 per cent. of its labour force in agriculture—a higher proportion than in industrialised Europe in 1900 and close to industrialised Europe in 1880. However, it is important here, as indeed in all comparisons of labour force structures, to take into consideration the extent to which national production meets the demand for agricultural products. In fact, the Europe of 1900 met a considerable part of this demand with imports, whereas the U.S.S.R.'s imports of agricultural products in 1960 were very low. It should also be observed that the primary sector's share of the labour force in the U.S.S.R. around 1920 was higher than in industrialised Europe before the Industrial Revolution.

The lack of change in agriculture's share of the labour force in the less developed regions, which has already been pointed out, results mainly from the demographic weight of South and East Asia among the developing countries as a whole. In that region the proportion of the labour force in the primary sector remained practically stable (allowance being made for margins of error in the figures) during the whole period under consideration and in particular between 1900 and 1950.

The differences in level of development between Latin America and the other developing countries will also be noted. With 50 per cent. of its labour force in agriculture and 20 per cent. in industry, Latin America is clearly different from South and East Asia, where these rates are 73 per cent. and 10 per cent. respectively. The structure of the labour force of South and East Asia in 1960 must be close to that of Latin America in 1880.

It will also be observed that the position of the Middle East and North Africa is in between Latin America and South and East Asia, though it is nearer the latter than the former.

The hypertrophy of the tertiary sector in the developing regions as a whole is attributable mainly to Latin America. In 1960 this region had 30 per cent. of its labour force in the tertiary sector, a percentage reached by Europe only after 1950 and corresponding to an undoubtedly much higher level of development. The existence of a similar situation in Japan (and even in some of the less developed countries of Europe) suggests that hypertrophy of the tertiary sector is much more likely to occur in countries that achieve industrialisation late. Moreover, this phenomenon begins to appear only above a certain level of economic development, which has not yet been reached by all the developing countries.

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#### APPENDIX I

This appendix consists of tables, given without comment, showing changes in the structure of the labour force by smaller region or by country (for definitions, see the general introduction to this article): Europe (1880-1960); long-industrialised Europe (1880-1960); E.E.C. (1880-1960); E.F.T.A. (1880-1960); North America (1860-1960); Latin America (1920-60); South and East Asia (1900-60); North Africa (1920-60).

TABLE A. LABOUR FORCE IN EUROPE, BY ECONOMIC ACTIVITY, 1880-1960

(Absolute figures and percentages)

	1960		1950		1930		1920		1900		1880	
	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	64.5	31.8	74.5	39.2	79.3	43.6	80.0	47.2	71.3	50.6	65.2	55.7
<i>of which</i> : men . . . . .	38.6	—	45.3	—	50.0	—	49.3	—	46.0	—	43.0	—
Mining and quarrying . . . . .	3.8	1.9	4.1	2.1	4.1	2.3	4.2	2.5	2.9	2.1	1.9	1.6
Manufacturing . . . . .	55.8	27.5	46.3	24.4	43.1	23.7	38.6	22.8	31.4	22.3	23.4	20.0
Construction . . . . .	14.0	6.9	11.1	5.8	7.3	4.0	5.6	3.3	5.5	3.9	4.1	3.5
Commerce . . . . .	20.9	10.3	16.7	8.8	16.0	8.8	12.9	7.6	7.2	5.1	4.7	4.0
Transport, storage and communication . . . . .	10.5	5.2	9.4	4.9	8.0	4.4	7.5	4.4	5.0	3.5	2.9	2.5
Services . . . . .	33.0	16.3	28.0	14.7	24.0	13.2	20.8	12.2	17.5	12.4	15.0	12.8
Total labour force . . . . .	202.7	100.0	190.1	100.0	181.7	100.0	169.6	100.0	140.9	100.0	117.1	100.0
Total population . . . . .	452.6	—	413.1	—	383.9	—	353.1	—	308.7	—	262.2	—

TABLE B. LABOUR FORCE IN LONG-INDUSTRIALISED EUROPE, BY ECONOMIC ACTIVITY, 1880-1960

(Absolute figures and percentages)

	1960		1950		1930		1920		1900		1880	
	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	21.4	17.0	30.3	25.0	35.3	29.7	39.5	34.3	38.7	39.2	37.5	45.9
<i>of which</i> : men . . . . .	14.1	—	19.4	—	23.2	—	25.0	—	26.0	—	25.6	—
Mining and quarrying . . . . .	2.8	2.2	3.1	2.6	3.6	3.0	3.8	3.3	2.7	2.8	1.8	2.2
Manufacturing . . . . .	42.3	33.6	36.8	30.4	35.4	29.7	33.1	28.8	27.6	27.9	20.6	25.2
Construction . . . . .	10.2	8.1	8.7	7.2	6.3	5.3	5.0	4.3	5.1	5.2	3.7	4.6
Commerce . . . . .	16.7	13.3	13.6	11.2	13.0	10.9	10.7	9.3	6.0	6.1	3.9	4.7
Transport, storage and communication . . . . .	7.6	6.0	7.3	6.0	6.6	5.6	6.4	5.5	4.3	4.4	2.6	3.2
Services . . . . .	24.9	19.8	21.5	17.7	18.8	15.8	16.7	14.5	14.4	14.6	11.7	14.4
Total labour force . . . . .	125.9	100.0	121.3	100.0	119.1	100.0	115.2	100.0	98.0	100.0	81.8	100.0
Total population . . . . .	286.3	—	268.3	—	250.0	—	236.0	—	216.5	—	184.0	—

TABLE C. LABOUR FORCE IN THE EUROPEAN ECONOMIC COMMUNITY, BY ECONOMIC ACTIVITY, 1880-1960

(Absolute figures and percentages)

	1960		1950		1930 <sup>1</sup>				1920 <sup>2</sup>		1900 <sup>2</sup>		1880 <sup>2</sup>	
	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	14.8	20.5	21.3	30.5	23.1	35.1	27.0	34.4	31.3	40.0	29.0	44.4	26.9	50.8
<i>of which : men</i> . . . . .	9.6	—	13.6	—	14.9	—	17.0	—	18.7	—	19.0	—	18.3	—
Mining and quarrying . . . . .	1.3	1.8	1.6	2.3	1.8	2.8	2.0	2.6	2.1	2.7	1.6	2.5	1.0	1.9
Manufacturing . . . . .	23.2	32.1	19.2	27.6	18.2	27.7	22.7	28.9	21.1	26.9	16.7	25.6	14.4	27.2
Construction . . . . .	6.1	8.5	5.1	7.3	3.4	5.2	4.1	5.3	3.4	4.3	3.2	4.9		
Commerce . . . . .	9.4	13.0	7.4	10.6	6.1	9.3	7.7	9.8	6.6	8.5	4.2	6.4	2.7	5.2
Transport, storage and communication . . . . .	3.9	5.4	3.8	5.4	3.3	5.0	3.9	5.0	3.9	5.0	2.2	3.4	1.2	2.3
Services . . . . .	13.6	18.8	11.4	16.3	9.8	14.9	11.0	14.0	9.9	12.7	8.4	13.0	6.7	12.7
Total labour force . . . . .	72.3	100.0	69.8	100.0	65.8	100.0	78.5	100.0	78.3	100.0	65.2	100.0	52.9	100.0
Total population . . . . .	169.6	—	155.8	—	136.4	—	163.6	—	154.0	—	142.0	—	120.6	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

<sup>1</sup> Left-hand columns: including the area now forming the Federal Republic of Germany; right-hand columns: including the whole of Germany.<sup>2</sup> Including the whole of Germany.

TABLE D. LABOUR FORCE IN THE EUROPEAN FREE TRADE ASSOCIATION, BY ECONOMIC ACTIVITY, 1880-1960

(Absolute figures and percentages)

	1960		1950		1930		1920 <sup>1</sup>				1900 <sup>2</sup>		1880 <sup>2</sup>	
	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	4.7	11.5	5.9	15.2	6.9	19.1	6.5	20.0	7.2	21.4	8.7	28.7	9.4	36.5
<i>of which : men</i> . . . . .	3.9	—	4.7	—	5.2	—	5.2	—	5.8	—	6.4	—	6.7	—
Mining and quarrying . . . . .	0.9	2.2	1.0	2.6	1.4	3.9	1.6	4.9	1.5	4.6	1.1	3.5	0.7	2.8
Manufacturing . . . . .	14.1	34.8	13.3	34.5	11.1	30.7	10.6	32.9	10.8	32.0	9.7	32.1	7.5	29.1
Construction . . . . .	3.1	7.6	2.6	6.8	1.9	5.1	1.3	4.1	1.4	4.1	1.7	5.8	1.3	4.9
Commerce . . . . .	5.8	14.4	4.9	12.7	4.8	13.4	3.8	11.7	3.9	11.7	1.7	5.5	1.0	3.7
Transport, storage and communication . . . . .	2.8	6.8	2.7	7.1	2.4	6.7	2.2	6.9	2.3	6.9	2.0	6.6	1.3	5.1
Services . . . . .	9.1	22.5	8.2	21.2	7.6	21.0	6.3	19.6	6.5	19.4	5.4	17.9	4.6	17.8
Total labour force . . . . .	40.6	100.0	38.5	100.0	36.2	100.0	32.3	100.0	33.7	100.0	30.2	100.0	25.8	100.0
Total population . . . . .	89.7	—	85.1	—	76.1	—	72.0	—	75.1	—	67.3	—	56.8	—

<sup>1</sup> Left-hand columns: including Northern Ireland; right-hand columns: including the whole of Ireland.<sup>2</sup> Including the whole of Ireland.

TABLE E. LABOUR FORCE IN NORTH AMERICA, BY ECONOMIC ACTIVITY, 1860-1960  
(Absolute figures and percentages)

	1960		1950		1930		1920		1900		1880		1860	
	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.	In mil- lions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	5.6	7.3	8.4	12.9	12.3	23.3	12.6	28.2	11.9	38.3	9.6	50.8	7.1	60.5
<i>of which : men</i> . . . . .	5.0	—	7.8	—	11.3	—	11.6	—	10.9	—	8.8	—	6.5	—
Mining and quarrying . . . . .	0.9	1.1	1.1	1.7	1.2	2.4	1.3	2.9	0.8	2.6	0.3	1.8	0.2	1.6
Manufacturing . . . . .	21.9	28.7	18.0	27.4	12.5	23.7	12.0	26.8	7.0	22.5	3.5	18.6	2.1	18.3
Construction . . . . .	5.0	6.5	4.2	6.4	3.3	6.3	2.3	5.2	1.8	5.7	1.0	4.7	0.9	7.3
Commerce . . . . .	16.9	22.2	14.0	21.4	8.2	15.5	5.3	11.9	3.0	9.6	1.3	7.1	1.4	12.3
Transport, storage and communication . . . . .	4.4	5.8	4.3	6.6	4.9	9.2	4.2	9.3	2.1	6.8	0.9	4.7	—	—
Services . . . . .	21.6	28.4	15.5	23.6	10.4	19.7	7.0	15.7	4.5	14.5	2.3	12.2	—	—
Total labour force . . . . .	76.2	100.0	65.5	100.0	52.8	100.0	44.8	100.0	31.1	100.0	19.0	100.0	11.7	100.0
Total population . . . . .	197.1	—	165.1	—	133.7	—	114.8	—	81.8	—	54.4	—	34.7	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

TABLE F. LABOUR FORCE IN LATIN AMERICA, BY ECONOMIC ACTIVITY, 1920-60  
(Absolute figures and percentages)

	1960		1950		1930		1920	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	35.1	50.1	30.7	54.1	25.0	63.4	21.0	65.9
<i>of which : men</i> . . . . .	30.8	—	27.3	—	22.0	—	19.0	—
Mining and quarrying . . . . .	0.8	1.1	0.7	1.2	0.5	1.2	0.4	1.1
Manufacturing . . . . .	10.2	14.5	7.9	13.8	5.2	13.4	4.2	13.0
Construction . . . . .	3.1	4.4	2.0	3.6	0.6	1.5	0.4	1.2
Commerce . . . . .	6.7	9.6	4.5	8.0	2.7	6.8	2.0	6.2
Transport, storage and communication . . . . .	3.1	4.5	2.1	3.7	5.3	13.7	4.0	12.4
Services . . . . .	11.1	15.9	8.9	15.6				
Total labour force . . . . .	70.0	100.0	56.8	100.0	39.0	100.0	32.0	100.0
Total population . . . . .	209.0	—	161.0	—	108.0	—	89.0	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

TABLE G. LABOUR FORCE IN SOUTH AND EAST ASIA, BY ECONOMIC ACTIVITY, 1900-60

(Absolute figures and percentages)

	1960		1950		1930		1920		1900	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	229.0	73.1	185.0	75.3	155.0	76.8	151.0	77.5	138.0	76.4
<i>of which : men</i> . . . . .	155.0	—	128.0	—	107.0	—	100.0	—	93.0	—
Mining and quarrying . . . . .	1.4	0.4	1.0	0.4	0.6	0.3	0.5	0.3	0.4	0.2
Manufacturing . . . . .	27.5	8.8	18.0	7.3	18.7	9.2	18.2	9.4	17.9	9.9
Construction . . . . .	4.1	1.3	2.7	1.1	1.4	0.7	1.4	0.7	1.2	0.7
Commerce . . . . .	16.4	5.2	13.6	5.5	11.1	5.5	10.8	5.6	10.7	5.9
Transport, storage and communication . . . . .	5.6	1.8	4.1	1.7	3.4	1.7	2.7	1.4	2.2	1.2
Services . . . . .	29.5	9.4	21.6	8.8	11.8	5.9	10.1	5.2	10.3	5.7
Total labour force . . . . .	314.0	100.0	246.0	100.0	202.0	100.0	195.0	100.0	181.0	100.0
Total population . . . . .	798.0	—	651.0	—	498.0	—	444.0	—	407.0	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

TABLE H. LABOUR FORCE IN NORTH AFRICA, BY ECONOMIC ACTIVITY, 1920-60

(Absolute figures and percentages)

	1960		1950		1930		1920	
	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.	In millions	Per cent.
Agriculture, forestry, hunting and fishing . . . . .	15.8	69.6	14.0	72.9	12.3	76.0	10.9	76.8
<i>of which : men</i> . . . . .	11.8	—	10.3	—	8.9	—	7.9	—
Mining and quarrying . . . . .	0.1	0.5	0.1	0.4	—	0.2	—	0.2
Manufacturing . . . . .	1.7	7.6	1.4	7.4	1.0	6.3	0.9	6.3
Construction . . . . .	0.5	2.2	0.4	1.9	0.3	1.8	0.2	1.6
Commerce . . . . .	1.4	6.3	1.2	6.0	0.9	5.7	0.7	5.1
Transport, storage and communication . . . . .	0.5	2.3	0.6	3.1	0.5	3.2	0.5	3.2
Services . . . . .	2.6	11.4	1.6	8.1	1.1	6.7	1.0	6.8
Total labour force . . . . .	22.7	100.0	19.2	100.0	16.2	100.0	14.2	100.0
Total population . . . . .	66.0	—	52.0	—	39.0	—	35.0	—

Note: The figures involving a fairly wide margin of error (see introduction) are in italics.

## APPENDIX II

### Methods employed; accuracy of data and estimates; sources

#### General methodology

I. The basis of the figures used <sup>1</sup> is provided by the results of population censuses (and certain sample surveys) that have been held in the various countries at various times. Where, as generally happens, the dates of the censuses do not coincide with those we have chosen, the activity rates and the percentages of the labour force engaged in the various divisions have been interpolated or, occasionally, extrapolated. This, of course, presupposes the continuous evolution of the labour force, but in general the percentages worked out in this way do not undergo sudden changes and the margin of error is reasonably small if the interpolation is made from dates sufficiently near. The same principles apply in extrapolation.

Members of the working population coming under the heading "activities not adequately described" or "activities unknown" have been distributed among the various divisions in proportion to the size of these divisions. In exceptional cases certain adjustments have been made (for example the inclusion in agriculture of the majority of "domestic servants" employed in agricultural households in Sweden in 1880 and 1900), but on the whole no detailed criticism of the data has been attempted.

It is obvious that the results obtained in this way suffer from the same lack of certainty and coherence as the census data (variations, often not specified, in the classifications, the criteria employed, etc., particularly in the older censuses). The principal lack of coherence, which is also the most troublesome, must be pointed out: it relates to the extent, varying from country to country and from census to census, to which unpaid family workers are included. As such workers generally form a great part of the female labour force in agriculture, variations appear in this branch that are often considerable and not based on reality. (In the United Arab Republic the number of women for every hundred men in the agricultural labour force has varied, according to the censuses, as follows: 6.5 in 1960; 13.3 in 1947; 19.6 in 1937; 17.5 in 1927; 67.0 in 1917; and 4.5 in 1907.) These variations, at least when they concern predominantly agricultural countries, distort the trends in activity rates and percentages relating to the various divisions of economic activity, as well as comparisons between countries. It has been impossible to remedy this defect; the best we could do was to give the number of economically active males in agriculture as well as the total labour force in this division.

II. Where, as has happened innumerable times, there are no census data, resort has been had to estimates from various sources, which are listed below under the heading *Sources*.

Sometimes fairly rough estimates have been specially made for the tables; they have generally been based on developments in countries of similar economic structure.

#### Accuracy of data and estimates

A few observations must be made on the degree of accuracy and the value of the data given for each of the regions in question.

#### EUROPE EXCLUDING THE U.S.S.R.

For 1960 and 1950. The breakdown of the secondary and tertiary sectors is fairly uncertain for Italy. For the Eastern European countries national nomenclatures may differ from the standard. The breakdown of the secondary sector is fairly uncertain for Turkey in 1950. The data for Bulgaria and Rumania are largely estimated on the basis of the only post-war census (1956). A very rough estimate has been made for Albania. On the whole, accuracy is very good, particularly for long-industrialised Europe.

<sup>1</sup> These data were assembled largely for *The working population and its structure*, op. cit.



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*For 1930 and 1920.* The systems of nomenclature are less uniform. For certain countries there is only a classification by occupation (Belgium, Italy, Spain, Turkey and Eastern and South-Eastern Europe, in 1930; and Austria, Czechoslovakia, Germany, Switzerland and Turkey, in 1920). Sometimes the breakdown of the secondary sector is arbitrary or highly uncertain (Scandinavia, Turkey, Eastern Europe). For 1930 the area now forming the Federal Republic of Germany has been the subject of an estimate based on the results of the 1939 census and the changes that took place in the whole of Germany. Lastly, the frontiers of Europe excluding the U.S.S.R. are those of the period between the two world wars. On the whole, accuracy is good for long-industrialised Europe and therefore fairly good for the whole of Europe.

*For 1900 and 1880.* Classification is generally by occupation. There are variations in nomenclature. Certain breakdowns of the secondary and tertiary sectors are arbitrary or very uncertain (Scandinavia, Eastern Europe and Southern Europe). The 1880 figures for Austria and Czechoslovakia (roughly the areas within the 1920 frontiers) have been based on extrapolation of the data for 1900 and 1890. For some countries the figures included are rough approximations. This is true of Albania, Bulgaria, Greece, Poland (1880), Rumania, Turkey and Yugoslavia. Lastly, the frontiers of Europe excluding the Russian Empire (but including Finland and Poland) are those of the period.

In general, accuracy is fairly good for the countries of long-industrialised Europe; for Europe as a whole the margin of error is much greater.

### AMERICA

*North America.* Data for the United States conform to a single classification of economic activities, similar to the present international standard. Canada has been dealt with by extrapolation or approximation for 1880 and 1900. Before 1950 classification was done by occupation in Canada. On the whole, accuracy is very good.

*Latin America.* For 1960 certain data are lacking, and the gaps have been filled by approximation (Bolivia, Colombia, Cuba, Guatemala, Haiti). For 1960 and 1950 there is some uncertainty regarding the importance of mining and quarrying (contradictions can be seen between the various sources used, the Brazilian censuses giving much higher figures than those used in this article). For 1930 and 1920 estimates based in particular on the data of Slawinski give acceptable approximations (see below, *Sources*). For 1900 the estimates are too uncertain to be taken alone. On the whole, estimates based mainly on the results of censuses have only approximated to those of Slawinski. Accuracy is acceptable, however, for 1960 and 1950.

### ASIA

*Japan.* For this country data exist that are grouped in accordance with a single classification of economic activities similar to the present international standard. Moreover, the dates of the censuses correspond to those used in this article. Accuracy is thus excellent as a rule.

*South and East Asia.* The only country that has been the subject of censuses from 1900 on is India. However, the data on this country show puzzling variations (for instance the fall in the activity rate in 1950), which greatly reduce their credibility.

*Other countries.* For 1960 the other countries for which census data exist are numerous; they are less so for 1950. For 1930, 1920 and 1900 they are the exception, and the rest have been the subject of rough estimates. On the whole, then, accuracy is reasonably good only for 1960.

### AFRICA

*North Africa.* The Sudan and Tunisia have been the subject of only one census, which took place in 1956. Data for Algeria are estimated on the basis of a sample survey (see below, *Sources*). The data for Libya have been worked out very roughly.

*Republic of South Africa.* A rough estimate has been made for 1900. Before 1930 classification was by occupation.

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Classification was by occupation in New Zealand before 1920 and in Australia before 1930.

The other regions or large countries of the world—China (mainland), the Middle East, Black Africa, developing Oceania and, to a certain extent, the U.S.S.R.—have been the subject of estimates that are too rough or uncertain to be given singly in the tables and so have only been incorporated in the world totals. This is true, above all, of China (mainland) and, to a certain extent, of the U.S.S.R.

### Sources

The census data are taken from:

*The working population and its structure*, published under the supervision of P. BAIROCH. By T. DELDYCKE, H. GELDERS and J.-M. LIMBOR. *International Historical Statistics*, Vol. 1 (Brussels, Editions de l'Institut de sociologie de l'Université libre de Bruxelles, 1968). Bilingual (French and English).

This work has constituted the basic tool throughout the article.

The following publications have also been used, particularly for estimates:

International Labour Office and United Nations: statistical year books and other publications.

J. S. AIRD: *The size, composition and growth of the population of mainland China* (Washington, D.C., U.S. Department of Commerce, Bureau of the Census, 1961).

P. BOURDIEU, A. DARBEL, J.-P. RIVET and C. SEIBEL: *Travail et travailleurs en Algérie* (The Hague, Mouton & Cie, 1963).

European Economic Community: *Social Statistics* (Brussels), various issues and supplements.

Gh. LUNGU: "Population and labour force in Eastern Europe and the U.S.S.R.: structure and recent trends", in *International Labour Review*, Vol. 91, No. 2, Feb. 1965, pp. 135-148.

Organisation for Economic Co-operation and Development: *Manpower Statistics* (Paris), 1954 to 1964 and supplements.

Antoni RAJKIEWICZ: "Industrialisation and structural changes in employment in the socialist countries", in *International Labour Review*, Vol. 94, No. 3, Sep. 1966, pp. 286-302.

Z. SLAWINSKI: "Structural changes in employment within the context of Latin America's economic development", in *Economic Bulletin for Latin America* (United Nations), Vol. X, No. 2, Oct. 1965.

Ta-Chung LIU and Kung-Chia YEH: *The economy of the Chinese mainland: national income and economic development, 1933-1959* (Princeton (New Jersey), Princeton University Press, 1965).

L. J. ZIMMERMAN: *The distribution of world income, 1860-1960. Essays on unbalanced growth* (The Hague, 1962).